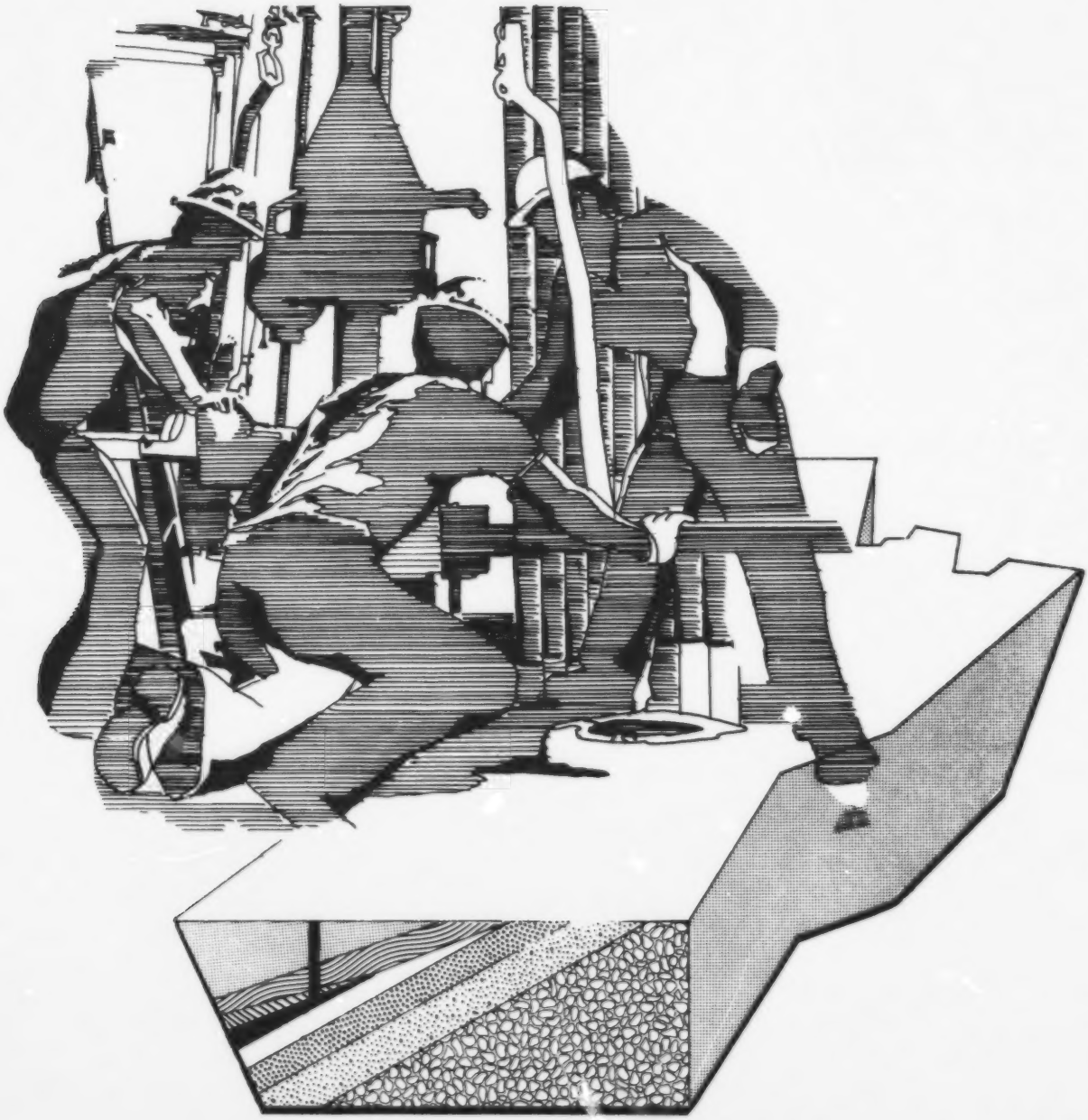
OIL ACTIVITY REVIEW 1988



Manitoba
Energy and Mines
Petroleum

MG 15454

Manitoba Oil Activity Review

1988

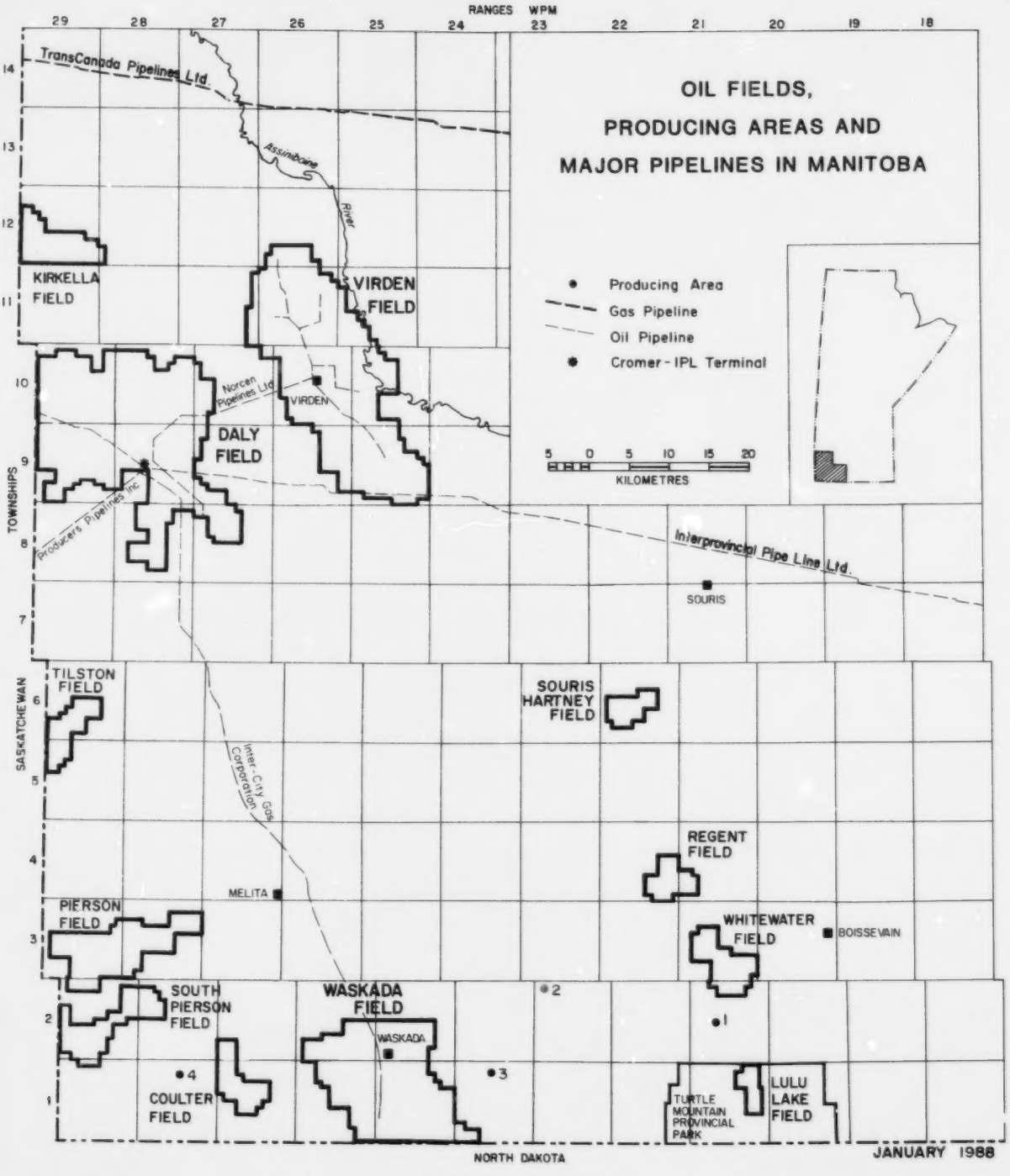
June 1989

Manitoba Energy & Mines
Petroleum

89-05719/

1988 Highlights

- During 1988, 72 wells were drilled in Manitoba, a 33% decrease from 1987's total of 107 wells.
- Manitoba's annual oil production was down approximately 1.7% from 1987 production to 768 563 m^3.
- The value of oil produced decreased to approximately $79 million, a 28% decrease from 1987.
- Provincial revenues from the oil industry (royalties, oil taxes, lease sales and lease rentals) decreased to $8.6 million during 1988, representing a 28% decrease from 1987 ($11.9 million).
- Gross royalties payable to freehold mineral owners were estimated to be $8.8 million in 1988 (Federal and Provincial tax liabilities included).
- Surface rights owners received approximately $3.4 million from rental payments during 1988.
- Municipal tax assessments on oilfield equipment and pipelines were estimated to be $9.1 million (with taxes paid amounting to approximately $1.8 million).
- Oil industry expenditures in Manitoba were estimated to be $63 million in 1988, a 23% decrease from 1987.
- Thirteen geophysical programs were licensed in 1988, covering 1 743 kilometres at an estimated cost of $2.3 million.
- Two sales of Crown oil leases covering 3 429 hectares generated $358 462 in revenue to the province in 1988, down 40 percent from 1987's total of $594 635.
- As of December 31, 1988 there were 12 oil fields and 111 non-confidential oil pools designated in the province.
- Crude oil prices fluctuated throughout the year between $14 - 20/bbl. In 1988, Manitoba's average crude oil price decreased by 27% to $16.25/bbl, compared with 1987's average of $22.20/bbl.
- The Federal Government announced adjustments to the Canadian Exploration and Development Incentive Program (CEDIP) phase-down on September 30, 1988. The incentive rate dropped from 33 1/3% of eligible exploration and development expenses to 25% on October 1, 1988 and will drop to 16 2/3% on July 31, 1989. The revised phase-down is intended to help the oil and gas industry during the current market downturn caused by the decline in oil prices.



OTHER PRODUCING AREAS

1. Mountainside
2. Deloraine
3. Goodlands
4. Lyleton

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Crown Oil and Natural Gas Lease Sales

Two Crown oil and natural gas lease sales were held in 1988. Twenty-nine leases covering 3 429 hectares were sold for a total of $358,462 down 40% from 1987's total of $594,635.

In the first lease sale, held on April 13, 1988, the average lease bonus price paid per hectare was $107.13, whereas in the November 9, 1988 sale, the average lease bonus price decreased by 21% to $84.42 per hectare. Compared with the two sales held in 1987, the average lease bonus price in 1988 increased by 2%, from $99.30 to $101.62/hectare. One exploration reservation, covering 2 112 hectares, was sold in 1988 for a total of $87,121 and an average reservation bonus price of $39.88/hectare.

The highest price in the April sale was $313.07 per hectare paid by N. McKenzie & Associates Land Ltd. for a parcel on the Saskatchewan border southwest of Pierson. The highest price per hectare in the November sale was paid by Omega Hydrocarbons Ltd. ($130.09 per hectare) for a parcel just east of Waskada.

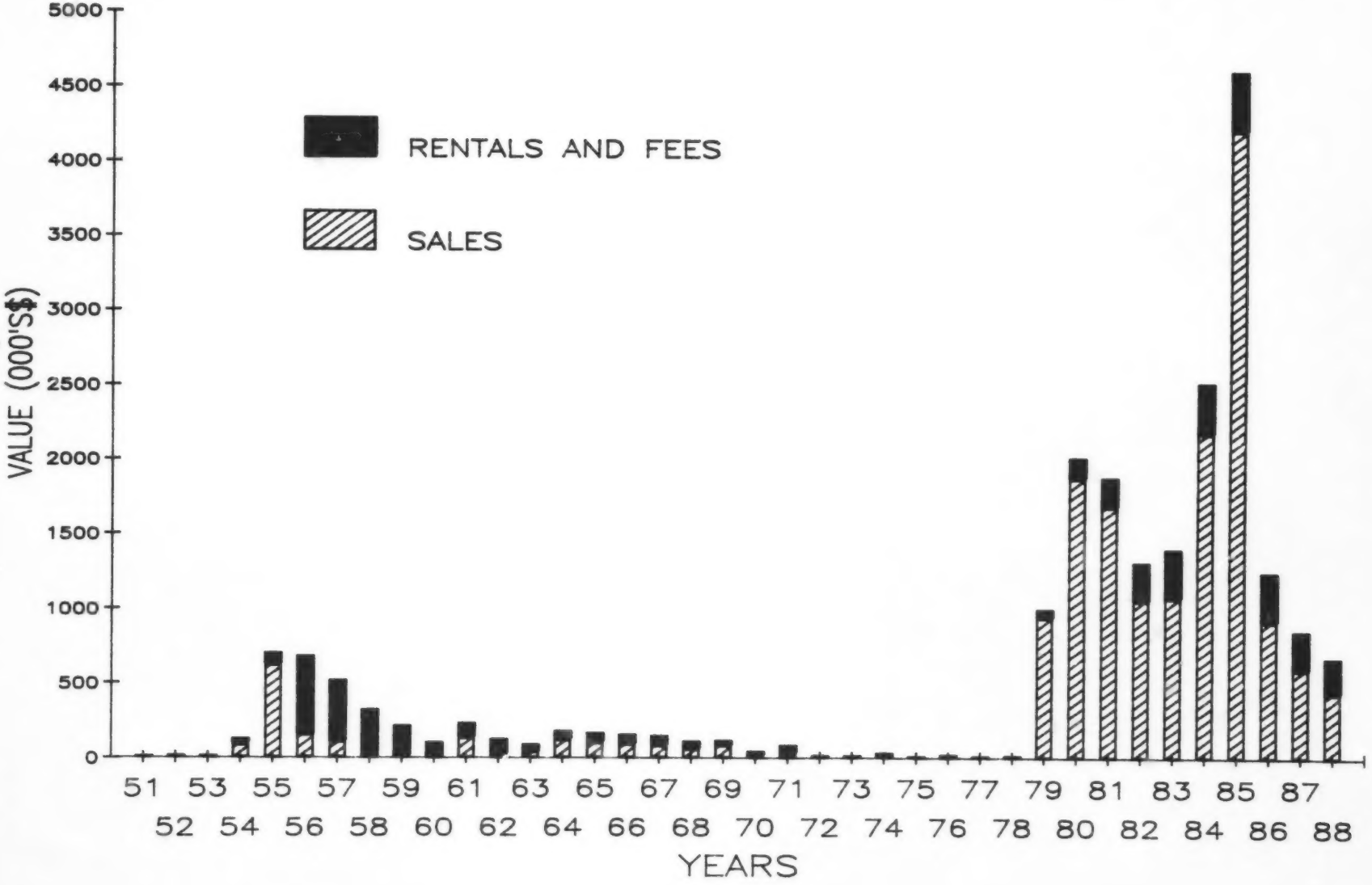
Lease sales in 1988 generated the lowest revenue since lease sales were re-implemented in 1979.

Since Crown oil and gas lease sales resumed in 1979, the province has received $15,265,304 in revenue from the disposition of Crown oil leases and exploration reservations (refer to table for annual sale statistics).

MANITOBA CROWN OIL LEASE AND RESERVATION SALE STATISTICS 1947 - 1988

	LEASE SALES						RESERVATION SALES						
YEAR	NO. OF LEASES SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	LEASE REVENUE ($)	NO. OF RES. SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	RES REVENUE ($)	TOTAL REVENUE FROM SALES ($)
1947-53				DATA UNAVAILABLE									
1954	31	4 184	82 814	19.79	37.37	88 291	0	0	0	0	0	0	88 291
1955	140	32 247	579 801	17.98	62.58	620 751	1	8 778	5 854	.67	.67	6 213	626 962
1956	28	4 534	43 902	9.68	79.09	49 682	4	255 016	105 587	.41	1.33	106 587	156 269
1957	16	4 568	100 373	21.97	44.71	106 174	2	48 820	3 256	.07	.08	3 756	109 931
1958	0	0	0	0	0	0	1	10 291	101	.01	.01	351	351
1959	1	777	505	.65	.65	1 475	2	11 478	11 879	1.03	2.42	12 379	13 854
1960	1	65	4 103	63.12	63.12	4 193	0	0	0	0	0	0	4 193
1961	0	0	0	0	0	0	4	50 721	134 099	2.64	6.75	135 099	135 099
1962	2	260	1 327	5.11	12.62	1 668	1	7 464	24 706	3.31	3.31	24 956	26 624
1963	63	5 055	31 614	6.25	17.30	38 468	1	3 498	1 608	.46	.46	1 858	40 326
1964	40	9 467	109 125	28.47	388.06	120 717	1	5 641	778	.14	.14	1 028	121 745
1965	42	4 347	40 235	9.26	77.60	46 024	15	92 717	52 672	.57	12.11	56 422	102 446
1966	31	4 417	24 086	5.45	64.22	29 850	6	38 639	62 886	1.63	2.08	64 636	94 485
1967	10	2 274	23 537	10.35	22.25	26 446	5	49 845	55 013	1.10	3.80	56 263	82 709
1968	19	3 599	22 630	6.29	18.92	27 265	6	46 640	31 426	.68	4.45	32 926	60 191
1969	2	970	7 164	7.39	11.94	8 382	3	16 453	75 282	4.58	7.54	76 032	84 414
1970	8	3 580	10 094	2.82	8.08	14 596	0	0	0	0	0	0	14 596
1971	2	1 230	33 673	27.38	49.75	34 308	0	0	0	0	0	0	34 308
1972-78				NO SALES									
1979	86	11 064	897 885	81.15	315.17	929 885	3	4 736	40 888	8.63	12.23	47 558	977 413
1980	80	12 540	1 057 530	84.33	470.51	1 092 880	8	15 572	820 345	52.68	100.31	841 810	1 934 690
1981	85	12 312	1 074 958	87.31	257.26	1 109 988	5	5 376	611 199	113.69	178.43	619 169	1 729 157
1982	56	6 448	1 055 668	163.72	938.88	1 074 588	0	0	0	0	0	0	1 074 588
1983	66	9 255	1 032 267	111.54	762.34	1 058 705	1	1 024	40 192	39.25	39.25	41 722	1 100 427
1984	104	8 776	2 181 499	248.58	1 411.17	2 208 639	0	0	0	0	0	0	2 208 639
1985	173	15 471	4 215 083	272.45	1 593.78	4 262 410	0	0	0	0	0	0	4 262 410
1986	103	7 904	891 358	112.77	602.00	916 268	1	768	20 285	26.41	26.41	21 495	937 763
1987	57	5 813	577 253	99.30	230.23	594 635	0	0	0	0	0	0	594 635
1988	29	3 429	348 439	101.62	313.07	358 462	1	2 112	84 231	39.88	39.88	87 121	445 583
Total	**1 275**	**174 586**	**14 446 923**	**82.75**	**N/A**	**14 824 720**	**71**	**675 040**	**2 182 287**	**3.23**	**N/A**	**2 237 381**	**17 062 101**

CROWN LEASE SALES, RENTALS AND FEES
1951 - 1988



Crown Oil and Natural Gas Leases

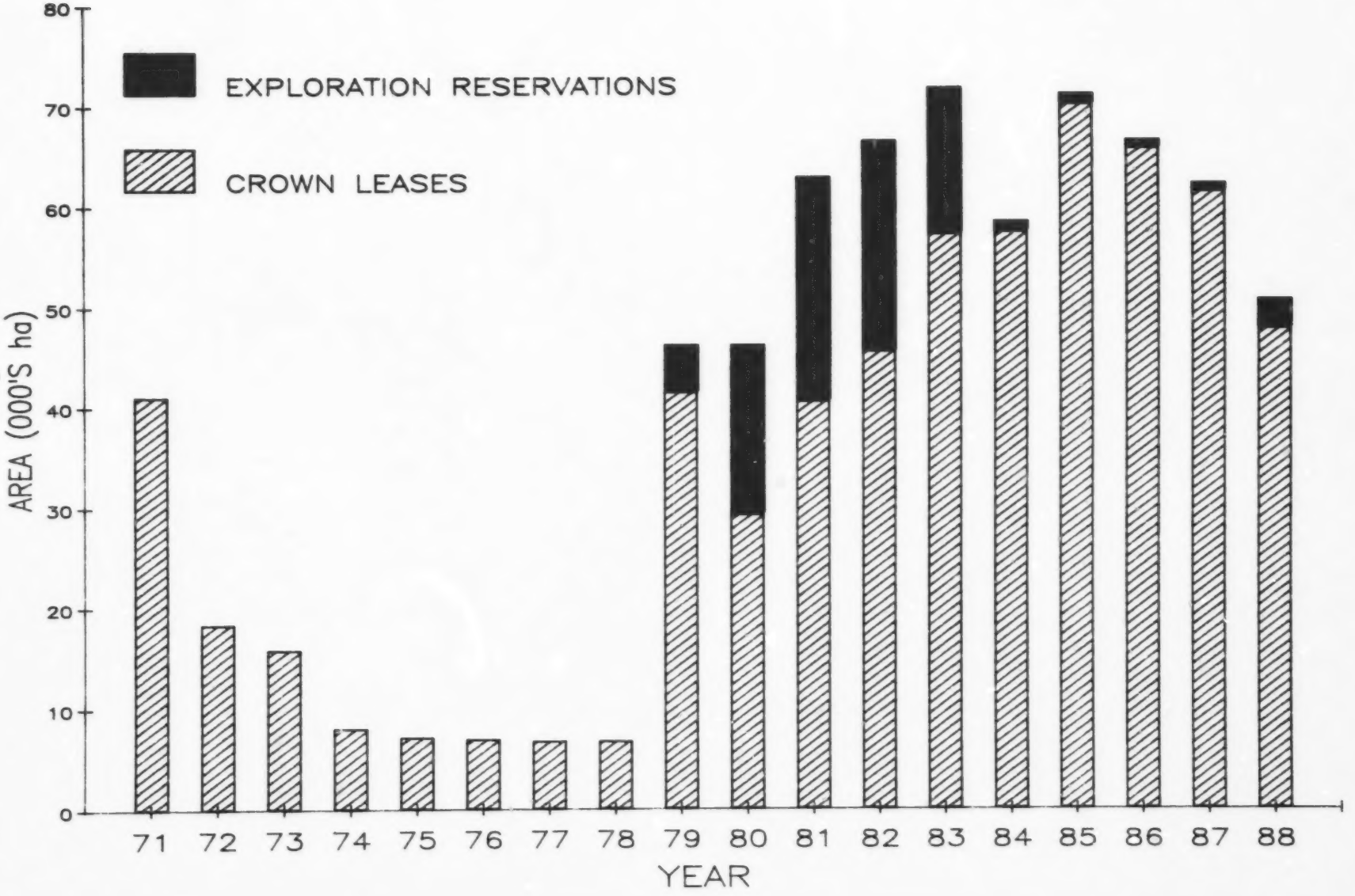
As of December 31, 1988, the total area of Crown oil and natural gas rights under disposition was 50 895 hectares. Of this total, 48 015 hectares were held under lease and 2 880 hectares were held under exploration reservations. In 1988 the total area under disposition decreased by 18.5 percent compared with 1988. The significant decrease over 1987 is due to the sale in 1988 of the Manitoba Oil and Gas Corporation, which resulted in cancellation of 5 968 hectares held under lease.

On December 31, 1982, deeper rights renewal provisions came into effect for pre-1979 leases. Under these provisions, non-productive areas and rights below the producing formation revert to the Crown at the end of the lease term. From January 1, 1983 to December 31, 1988, these regulatory termination provisions resulted in 377 leases covering 51 387 hectares being terminated. These cancelled rights again become available for leasing by other parties interested in actively developing them.

Oil and natural gas leases have initial terms of five years. Because nine years have passed since lease sales were resumed in 1979, 1988 was the fifth year that post-1978 lease holders had to surrender non-productive leases or apply for one-year extensions by paying additional rental penalties and committing to drilling programs. As a result, those leases surrendered will again be made available to other interested parties.

In 1988, one lease was extended.

CROWN OIL & GAS RIGHTS
UNDER DISPOSITION (DEC. 31ST) 1971-1988



Freehold Mineral Owner's Leasing and Revenue

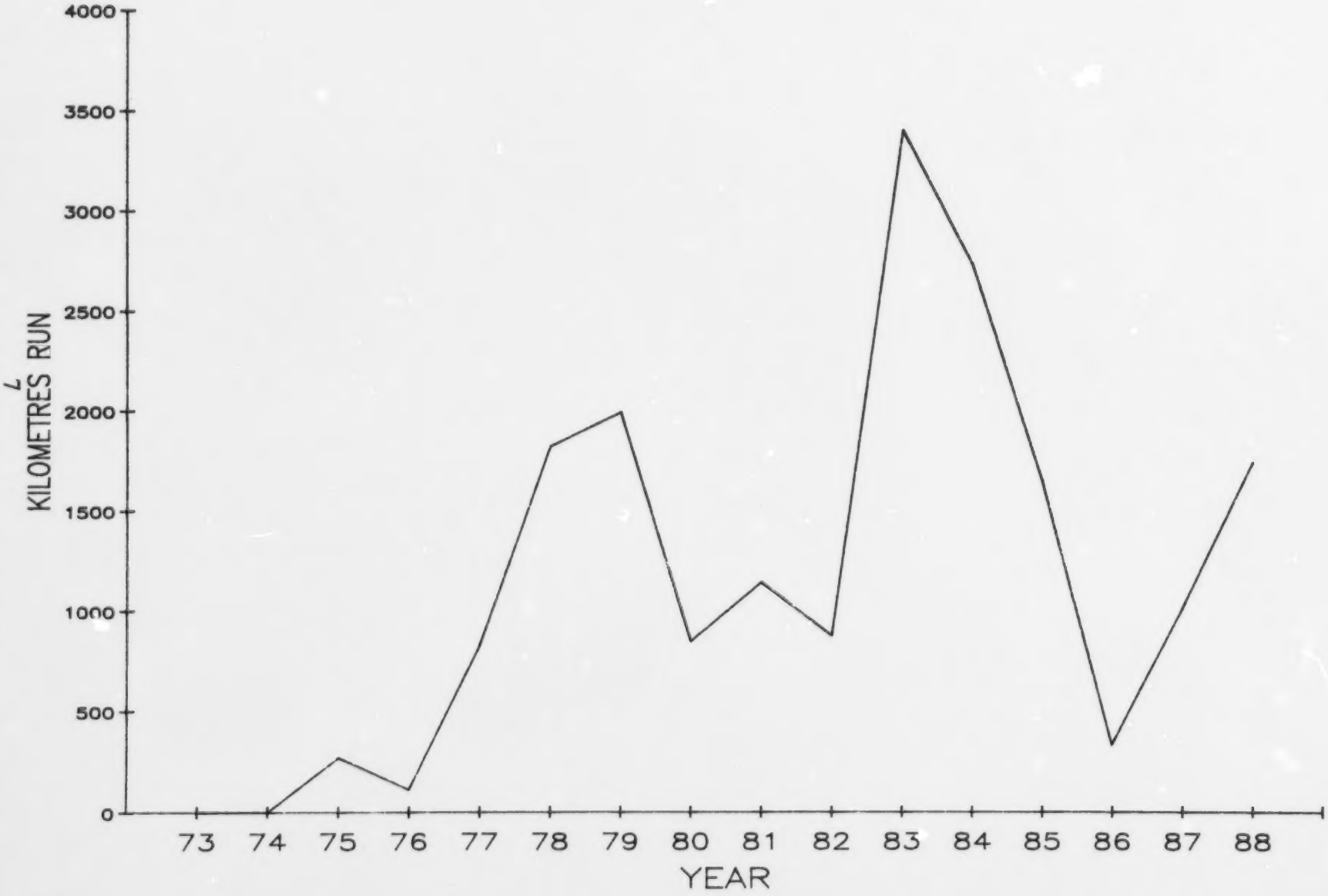
Approximately 80% of the mineral rights in southwestern Manitoba are privately owned (freehold). There is keen competition among companies to negotiate new leases with freehold mineral owners in areas of current interest where leases have expired or where mineral rights are not presently leased. Freehold mineral owners receive revenue from signing bonuses, delay rental payments and oil royalties when production is obtained. Freehold royalties may range from 12 1/2 to 20% of gross production sales value. It is estimated that gross royalties payable to freehold mineral owners in 1988 were $8.8 million (not including signing bonuses and delay rental payments for new and non-producing leases and before payment of provincial and federal taxes).

Geophysical Activity

Thirteen geophysical licenses were issued in 1988. The licensed programs covered approximately 1 743 km, making 1988 a good year for geophysical exploration in the Province compared with 1987. The estimated cost of these programs was $2.3 million.

In 1988, geophysical programs were carried out in the following areas of the province: Archie, Birdtail, Birtle, Ellice, Lyleton, Miniota, Shoal Lake, South Pierson, and Tilston.

GEOPHYSICAL ACTIVITY 1973-1988



MANITOBA GEOPHYSICAL ACTIVITY SUMMARY
1973-1988

YEAR	LICENSES ISSUED	KILOMETRES RUN (km)	TOTAL PROGRAM COSTS $
1973	0	0	0
1974	0	0	0
1975	1	270	106 500
1976	3	112	118 302
1977	2	830	1 046 220
1978	5	1 828	3 451 370
1979	10	2 001	2 970 734
1980	10	851	1 843 438
1981	11	1 148	2 116 854
1982	19	879	1 805 512
1983	14	3 410	3 639 692
1984	23	2 731	5 547 086
1985	25	1 647	3 081 241
1986	8	338	1 227 227
1987	13	683	2 713 000
1988	13	1 500*	*2 300 000

*Estimate

SUMMARY OF 1988 GEOPHYSICAL PROGRAMS

Geophysical License No.	Licensee	Contractor	Km Licensed
286	Trace Exploration	Trace Exploration	6.7
287	Chevron Canada Resources	Chevron Industries	21.5
288	Chevron Canada Resources	Chevron Industries	94.0
289	Wildrose Exploration	Wildrose Exploration	315.0
290	Trace Exploration	Trace Exploration	67.0
291	Newscope Resources	Pioneer Exploration Inc.	6.5
292	Wildrose Exploration	Wildrose Exploration	500.0
293	Canadian Hunter	Format Resources Corp.	58.0
294	Wildrose Exploration	Wildrose Exploration	350.0
295	Chevron Canada Resources	Chevron Industries	171.3
296	Pioneer Exploration Inc.	Pioneer Exploration Inc.	32.0
297	Canadian Hunter	Format Resources Corp.	61.0
298	Wildrose Exploration	Wildrose Exploration	60.0
Total			**1743.0**

Drilling Activity

Drilling activity in Manitoba was off again for the second year due to the collapse and slow recovery of crude oil prices during 1986 and 1987. In 1988, 78 drilling licenses were issued, resulting in 17 different oil companies drilling 72 wells (33% lower than 1987). Six drilling contractors using 10 drill rigs drilled 63 722 metres of hole. Of the 72 wells drilled in 1988, 54 were classified as development wells, while the remaining 18 were exploratory.

Despite the drop in drilling activity however, the success rate of wells drilled continued to be high. Sixty-seven percent (48 wells) of the 72 wells drilled were completed as potential oil wells. Eighty-five per cent of the 54 development wells drilled and seventeen percent of the 18 exploratory wells drilled were completed as potential oil wells.

The Daly area continued to draw most of the drilling activity (28%) with 15 development wells and 5 exploratory wells drilled. The Waskada area recorded 14 wells (19% of total drilling activity) while the South Pierson area accounted for 10 wells drilled.

Areas of New Interest

South Pierson

Delineation of significant reserves in the Lower Amaranth and Mission Canyon Formations in the South Pierson Field (located in the extreme south-west corner of the Province) is continuing.

Virden

Development of a new Mississippian Lodgepole pool in the south-west part of the Virden Field continued. To date, six producing wells and one salt water disposal well have been drilled in the area.

Daly

Development of the Bakken play in the north-west part of the Daly Field continued at a slower pace in 1988. To date, a total of seven seperate Bakken pools have been designated in the Daly Field.

Waskada

Development in the Waskada Field continued at a reduced pace. Significant development in the north-east part of the Field occurred.

1988 DRILLING STATISTICS

No of Wells Drilled by Operator

	1988	1987
Tundra Oil and Gas	19	22
Enron Oil Canada Ltd.	9	11
Chevron Canada Resources Ltd.	7	5
Home Oil Company Limited	7	5
Newscope Resources Limited	6	12
Manitoba Oil and Gas Corp.	6	10
Omega Hydrocarbons Ltd.	5	18
Morgan Hydrocarbons Ltd.	3	--
Rideau Petroleums Ltd.	2	6
Sceptre Resources Limited	1	2
Saskatchewan Oil and Gas Corp.	1	1
The Magnificent Seven Corp.	1	--
N.W. Resources Ltd.	1	--
International Interlake Industries Inc.	1	5
Canadian Roxy Petroleums Ltd.	1	--
Canada Northwest Energy Limited	1	--
Dome Petroleums Limited	1	--
Total	**72**	**--**

No of Wells Drilled by Contractor

	1988	1987
Crown Drilling Ltd.	29	35
Can Am Drilling Ltd.	20	4
Simmons Group Inc.	13	--
Atco Drilling Ltd.	4	3
Red Arrow Drilling Ltd.	3	35
Sedco Drilling Ltd.	3	28
Total	**72**	**--**

1988 DRILLING ACTIVITY BY AREA

Area	TWP	RGE WPM	# Of Wells Drld.	Development Drld.	Development POW	Exploration Drld.	Exploration POW	Total POW	Dry/ Abd	Other
Daly	8-10	27-29	20	14	11	5	1	12	7	1
Tilston	5/6	29	1	1	--	--	--	--	1	--
Waskada	1/2	25/26	14	12	10	2	--	10	4	--
Lulu Lake	1	21	--	--	--	--	--	--	--	--
Virden	9-12	25-27	5	5	5	--	--	5	--	--
Whitewater	2/3	21	2	1	1	1	1	2	--	--
Pierson	3	28/29	5	4	3	1	--	3	2	--
Kirkella	12	29	--	--	--	--	--	--	--	--
Souris Hartney	6	22	1	--	--	1	--	--	1	--
Coulter	1	27	--	--	--	--	--	--	--	--
S. Pierson	2	28/29	10	9	9	1	1	10	--	--
Regent	4	21/22	8	6	5	2	--	5	3	--
Other Areas			6	1	1	5	--	1	5	--
Total			**72**	**53**	**45**	**18**	**3**	**48**	**23**	**1**
% of Total Drilled			--		74		25	67	32	1
Success Rate			--		85		17	67	--	--

POW = Potential Oil Wells

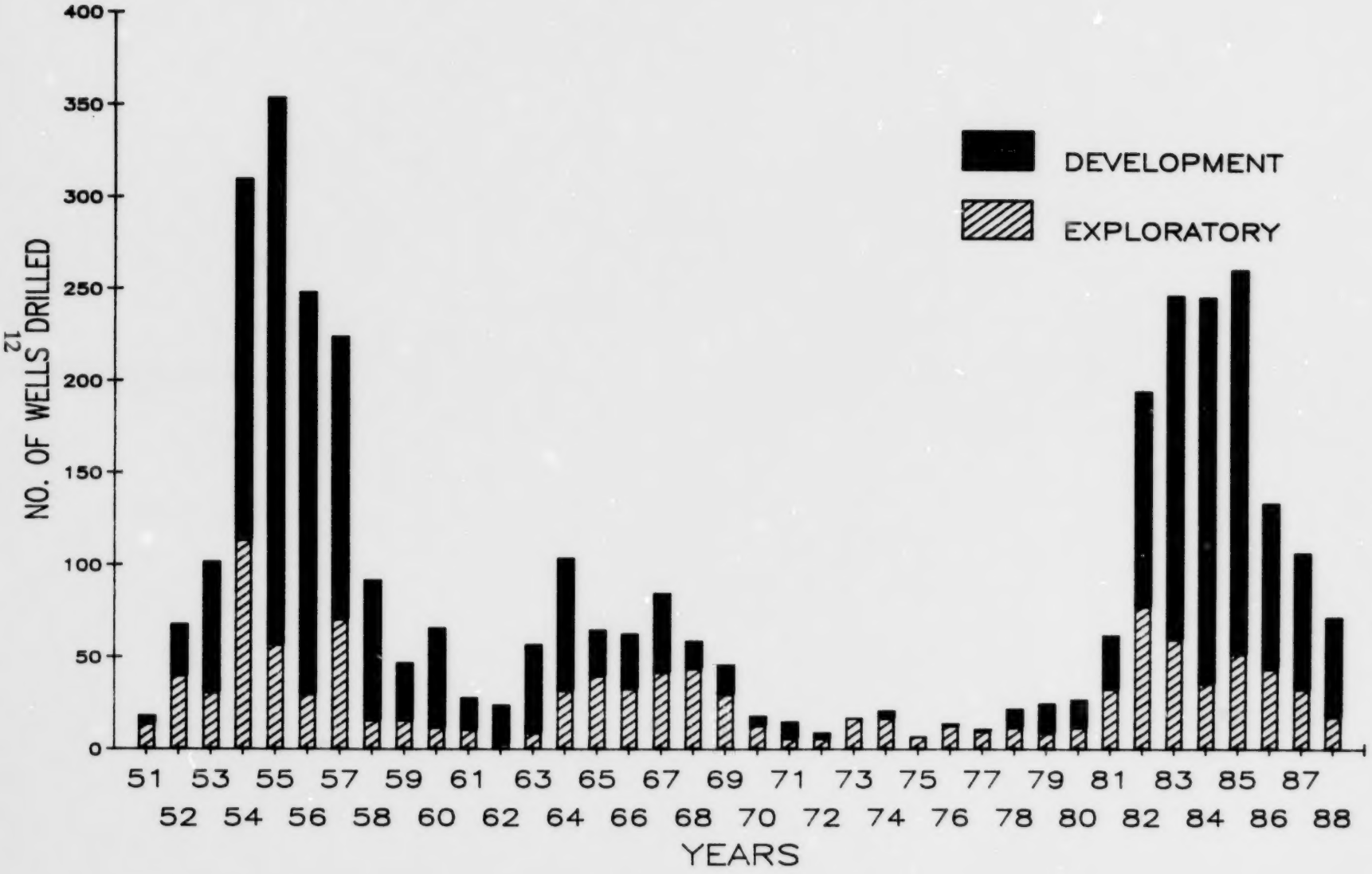
DRILLING ACTIVITY 1951-1988

YEAR	OIL AND GAS WELLS								OTHER WELLS DRILLED*			
	WELLS LICENSED	WELLS DRILLED	WELL CLASSIFICATION		COMPLETED STATUS			METRES DRILLED	STH	PTH	GSW	Helium
			E	D	POTENTIAL OIL	ABANDONED DRY	SERVICE					
1951	20	18	14	4	6	10	2	14 956	103	0	0	0
1952	74	68	40	28	25	33	10	58 344	33	0	0	0
1953	119	102	31	71	73	29	0	76 682	9	0	0	0
1954	340	310	114	196	217	90	3	233 170	0	0	0	0
1955	378	354	57	297	279	66	9	254 774	5	0	0	0
1956	269	248	30	218	202	38	8	176 994	14	0	0	0
1957	225	224	71	153	139	85	0	155 469	2	0	0	0
1958	92	92	16	76	61	31	0	60 430	0	0	0	0
1959	48	47	16	31	30	17	0	30 792	0	2	0	0
1960	65	66	12	54	50	15	1	43 918	0	0	0	0
1961	25	28	11	17	11	16	1	17 389	0	1	0	0
1962	28	24	3	21	15	9	0	17 683	0	0	0	2
1963	59	57	9	48	39	16	2	43 451	0	0	0	0
1964	107	104	32	72	68	35	1	75 303	0	3	0	0
1965	69	65	40	25	27	38	0	50 298	2	8	0	0
1966	68	63	33	30	29	33	1	54 863	5	4	0	0
1967	90	85	42	43	44	41	0	67 068	0	0	0	0
1968	61	59	44	15	27	32	0	48 840	2	0	1	0
1969	55	46	30	16	14	29	3	34 376	38	0	0	0
1970	17	18	13	5	2	16	0	16 253	1	0	0	0
1971	18	15	6	9	2	8	5	13 026	6	0	0	0
1972	10	9	6	3	0	7	2	6 778	1	0	0	0
1973	19	17	17	0	0	17	0	14 083	0	0	0	0
1974	21	21	17	4	6	14	1	22 710	1	0	0	0
1975	5	7	7	0	2	4	1	6 717	4	0	0	0
1976	14	14	13	1	3	11	1	11 161	0	0	2	0
1977	19	11	10	1	9	2	0	9 359	0	0	2	0
1978	16	22	12	10	10	6	6	18 329	0	0	0	0
1979	27	25	9	16	16	9	0	20 537	0	0	0	0
1980	27	27	12	15	18	9	0	23 508	0	6	0	0
1981	71	62	33	29	47	15	0	61 011	0	5	0	0
1982	201	195	78	117	164	30	1	184 282	0	0	0	0
1983	284	247	60	187	223	24	0	229 304	0	5	0	0
1984	249	246	36	210	218	28	0	220 631	0	0	0	0
1985	306	261	52	209	229	29	3	228 387	7	0	0	0
1986	116	134	44	90	122	11	1	118 675	0	1	0	0
1987	116	107	33	74	90	17	0	96 970	0	0	0	0
1988	78	72	18	54	48	23	1	63 722	0	0	0	0
Total	**3 806**	**3 570**	**1 121**	**2 449**	**2 565**	**943**	**63**	**2 880 243**	**233**	**35**	**5**	**2**

E - Exploratory; D - development; Service - water supply, salt water disposal, water injection wells; STH - Structure test hole; GSW - gas storage well; PTH - potash test hole.

*"Other Wells Drilled" are not included in the Number of Wells Licensed, Number of Wells Drilled, or Metres Drilled columns.

WELLS DRILLED IN MANITOBA
1951-1988



Summary of 1988 Drilling Activity

	Total 1988	January	February	March	April	May	June	July	August	September	October	November	December
Well Licenses Issued		19	11	10	2	3	13	4	5	6	3	1	1
Rigs Operated	--	4	7	6	--	1	3	3	2	2	1	2	--
Wells Drilled (Total):	72	8	15	16	--	1	12	8	3	5	1	3	--
Development	54	8	8	11	--	1	11	6	3	3	1	2	--
Exploratory Outpost	6	--	2	1	--	--	--	1	--	1	--	1	--
Exploratory NFW*	10	--	4	3	--	--	1	1	--	1	--	--	--
Exploratory DPW*	2	--	1	1	--	--	--	--	--	--	--	--	--
Exploratory NPW*	--	--	--	--	--	--	--	--	--	--	--	--	--
Metres Drilled (Total):	63 722	7 038	13 970	13 782	--	900	10 532	7 032	2 558	4 466	957	2 487	--
Development	49 081	7 038	8 146	10 382	--	900	9 784	5 254	2 558	2 505	957	1 557	--
Exploratory Outpost	5 368	--	1 835	930	--	--	--	838	--	835	--	930	--
Exploratory NFW	7 488	--	3 054	1 620	--	--	748	940	--	1 126	--	--	--
Exploratory DPW	1 785	--	935	850	--	--	--	--	--	--	--	--	--
Exploratory NPW	--	--	--	--	--	--	--	--	--	--	--	--	--
New Potential Oil Wells	48	8	8	11	--	1	8	5	2	3	--	2	--
Abandoned Dry	23	--	7	5	--	--	3	3	1	2	1	1	--
Other	1	--	--	--	--	--	1	--	--	--	--	--	--

*NFW New Field Wildcat
DPW Deeper Pool Wildcat
NPW New Pool Wildcat

1988 EXPLORATORY WELLS CASED FOR PRODUCTION

Location	Operator	Classification
Daly Area		
1-21-9-29 WPM	Rideau Petroleums Ltd.	Deeper Pool Wildcat
5-30-8-27 WPM	International Interlake Industries	New Field Wildcat
2-23-9-28 WPM	Tundra Oil and Gas	Deeper Pool Wildcat
6-21-10-28 WPM	Tundra Oil and Gas	Outpost
S. Pierson Area		
3-24-2-29 WPM	NW Resources Ltd.	Outpost
Regent Area		
16-16-4-22	Tundra Oil and Gas	New Field Wildcat
Whitewater Area		
4-10-3-21	Dome Petroleums Ltd.	Outpost

EXPLORATORY* WELLS DRILLED IN MANITOBA BY FORMATION 1974 - 1988

	(Geological Period of Formation Drilled Into)								
Year	**Cretaceous**	**Jurassic**	**Mississippian**	**Devonian**	**Silurian**	**Ordovician**	**Cambrian**	**Precambrian**	**Total**
1974	1	--	5	--	--	--	--	2	18
1975	1	--	4	1	--	4	--	1	11
1976	-	--	5	7	--	--	--	--	12
1977	-	--	10	-	--	--	--	--	10
1978	-	--	9	1	--	1	--	1	12
1979	-	--	6	1	--	--	--	2	9
1980	-	--	8	1	1	--	--	1	11
1981	-	--	21	6	--	--	--	5	32
1982	-	--	72	5	--	--	--	1	78
1983	-	1	48	9	1	--	--	1	60
1984	1	--	32	2	--	--	--	1	36
1985	-	--	49	2	--	--	--	1	52
1986	-	--	30	13	--	--	--	--	43
1987	-	--	13	19	1	--	--	--	33
1988	3	--	9	6	--	--	--	--	18
Total	**6**	**1**	**321**	**73**	**3**	**5**	**--**	**26**	**435**

* Exploratory - includes outpost, new field wildcat, new pool wildcat and deeper pool wildcat classifications.

DETAILED DRILLING STATISTICS 1981-1988

Exploratory

Year	New Field Wildcat Drld	New Field Wildcat Success(%)	Outpost Drld	Outpost Success(%)	Deeper Pool Test Drld	Deeper Pool Test Success(%)	New Pool Wildcat Drld	New Pool Wildcat Success(%)	Sub Total
1981	23	35%	6	100%	4	100%	--	--	33
1982	43	44%	35	94%	0	--	--	--	78
1983	29	59%	27	93%	4	100%	--	--	60
1984	19	37%	16	50%	1	100%	--	--	36
1985	29	60%	22	82%	1	100%	--	--	52
1986	21	86%	16	94%	6	100%	--	--	43
1987	12	25%	7	57%	12	92%	2	100%	33
1988	10	0%	6	33%	2	50%	--	--	18

	Development Drld	Development Success(%)	Other Service	Other STH/PTH	Total
1981	29	100%	0	5	67
1982	117	95%	0	0	195
1983	187	95%	0	5	252
1984	210	95%	0	0	246
1985	209	92%	3	7	268
1986	90	95%	1	1	135
1987	74	93%	0	0	107
1988	53	85%	1	--	72

MANITOBA

NON-ABANDONED WELLS (Dec. 1988)

Field	Active Oil Producers*	Inactive Oil Producers*	Active WSW	Inactive WSW	Active GIW	Active SWD**	Inactive SWD**	Active WIW	Inactive WIW	(Dec.31/88) Drilled but Not Activated***	(Dec.31/88) TotalNon-Abandoned Wells***
Daly	354	58	--	1	--	14	2	27	7	23	486
Tilston	15	6	--	--	--	1	1	--	--	1	24
Waskada	318	75	1	4	1	4	--	63	32	8	506
Lulu Lake	7	--	--	--	--	1	--	--	--	1	9
Virden	536	36	--	--	--	19	4	120	1	3	719
Whitewater	24	3	--	--	--	1	--	--	--	2	30
Pierson	47	8	--	--	--	5	--	--	--	1	61
Kirkella	24	12	--	--	--	4	1	--	--	1	42
Souris-Hartney	6	2	--	--	--	1	--	--	--	--	9
Coulter	4	5	--	--	--	1	--	--	--	1	11
South Pierson	26	4	--	--	--	2	--	--	--	3	35
Regent Field	9	2	--	--	--	1	--	--	--	--	12
Other Areas	9	8	--	--	--	1	--	--	--	2	20
Total	**1 370**	**234**	**1**	**5**	**1**	**54**	**9**	**217**	**35**	**28**	**1 954**

1988 Designated Field Boundaries

Active Wells (Dec. 1988) = 1 719

* Dual wells not included.

** Dual wells included.

*** Excludes abandonments during December

Production and Markets

Annual oil production in Manitoba was 768 563 m^3 (4.8 million barrels) in 1988, representing a 1.7% decrease from 1987. During December 1988 the Province had 1 370 oil wells producing.

Oil production from the Virden, Waskada and Daly Fields during 1988 accounted for 40%, 26% and 20% respectively of Manitoba's total production. The South Pierson Field experienced the largest increase in oil production, 13 795 m^3 or a 113% increase.

In 1988, approximately 408 000 m^3 (53% of total production) was classified as "new" oil (oil produced from wells drilled after 1973).

Of the total amount of oil purchased by refiners in 1988, approximately 30% was refined in Ontario, 20% was utilized by refiners in Quebec and 50% went to refineries in the United States.

1988 ANNUAL PRODUCTION

By Operator	Vol (m^3)
Chevron Canada Resources	323 777.3
Omega Hydrocarbons Ltd.	141 921.0
Enron Oil Canada Ltd.	45 631.6
Tundra Oil and Gas	37 268.0
Newscope Resources Limited	27 960.3
Rideau Petroleums Ltd.	23 327.4
Canada Northwest Energy Limited	22 218.7
International Interlake Industries Inc.	21 043.1
Home Oil Company Limited	19 687.9
Canadian Roxy Petroleum Ltd.	17 722.0
Manitoba Oil and Gas Corporation	9 894.5
Samedan Oil of Canada, Inc.	9 343.9
Mead Petroleum & Farms Ltd.	7 043.2
Lyleton Corporation	6 014.4
ICG Resources Ltd.	5 628.7
Ranchmen's Resources Ltd.	4 085.1
Texaco Canada Resources	4 070.5
Saskatchewan Oil and Gas Corporation	4 013.3
Murphy Oil Company Ltd.	3 666.4
Can-Tex Drilling & Exploration Ltd.	3 652.2
Voyager Energy Inc.	3 322.4
Assiniboine Developments Ltd.	2 700.8
Dome Petroleum Limited	2 340.4
Suncor Inc.	2 251.3
Trilogy Resource Corporation	1 880.5
Resman Oil and Gas Ltd.	1 879.0
Koch Exploration Canada Ltd.	1 825.6
Resman Holdings Ltd.	1 746.7
Triton Petroleum Limited	1 708.6
Gerrand Enterprises Ltd.	1 536.2
Southern Resources Ltd.	1 276.0
Other	8 126.1
Total	**768 563.1**

By Field	Vol (m^3)
Virden	309 082.2
Waskada	203 394.5
Daly	156 794.8
South Pierson	26 041.9
Pierson	23 244.7
Whitewater	16 852.2
Kirkella	9 424.6
Regent	6 199.5
Tilston	5 634.5
Lulu Lake	3 417.3
Souris Hartney	2 270.6
Coulter	737.9
Other Areas	5 400.9
Conf. Wells	67.5
Total	**768 563.1**

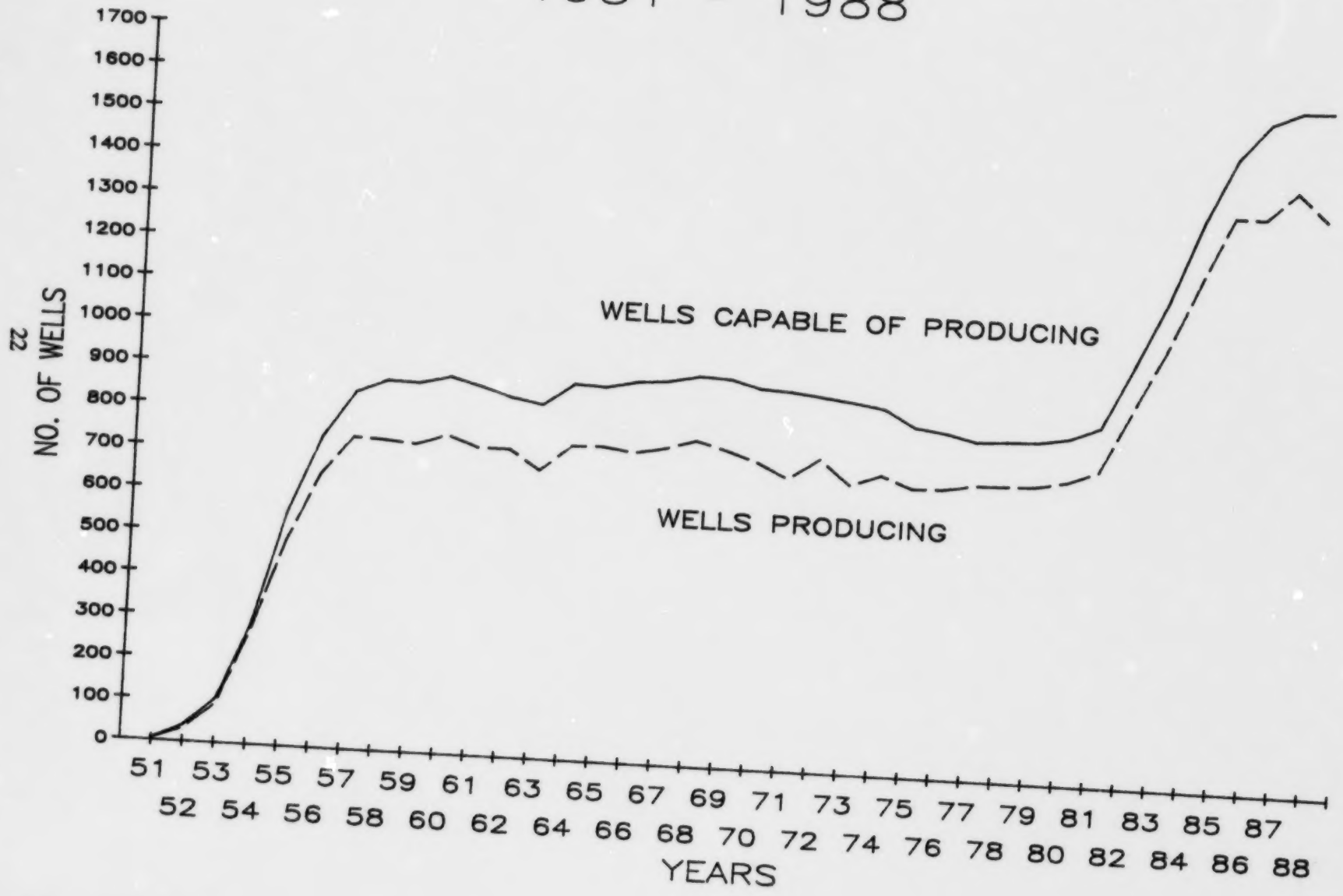
1988 MONTHLY CRUDE OIL PRODUCTION BY FIELD (m^3)

Field	January	February	March	April	May	June	July	August	September	October	November	December	Total
Daly	13 550.7	12 896.8	14 218.3	13 491.3	12 869.2	12 705.8	13 349.3	12 974.0	12 509.2	13 018.1	12 637.7	12 574.7	**156 794.8**
Tilston	500.3	504.0	526.4	496.2	478.6	445.4	468.6	455.9	445.5	447.0	421.0	445.6	**5 634.5**
Waskada	17 485.7	16 479.6	18 302.7	17 391.1	17 618.6	16 741.1	16 961.0	17 049.9	16 321.3	16 886.0	15 908.0	16 249.3	**203 394.5**
Lulu Lake	322.2	303.8	310.1	305.6	309.6	280.1	262.5	225.1	230.7	309.6	281.2	276.8	**3 417.3**
Virden	27 096.2	24 982.3	26 370.0	25 344.7	26 548.1	25 216.7	26 329.0	25 765.1	25 084.3	25 823.4	24 804.6	25 717.8	**309 082.2**
Whitewater	1 630.4	1 379.9	1 410.9	1 506.8	1 377.8	1 475.1	1 475.6	1 276.0	1 323.4	1 357.4	1 314.4	1 342.5	**16 852.2**
Pierson	2 029.7	1 873.3	1 956.1	1 913.5	1 932.0	1 944.7	2 052.7	1 981.8	1 875.4	1 915.4	1 804.7	1 965.4	**23 244.7**
Kirkella	665.9	695.9	784.3	691.5	704.5	752.7	749.6	958.7	869.2	927.1	833.2	792.0	**9 424.6**
Souris Hartney	210.8	193.6	207.0	151.2	198.0	198.0	204.5	190.8	178.3	179.6	183.3	175.5	**2 270.6**
Coulter	68.9	54.3	63.8	94.1	90.0	80.4	72.3	58.7	46.5	46.1	42.0	20.8	**737.9**
South Pierson	1 318.7	1 422.5	1 869.5	1 726.3	1 743.9	1 919.2	2 394.3	2 381.9	2 533.0	3 039.9	2 754.7	2 938.0	**26 041.9**
Regent	653.9	549.1	597.4	509.2	394.2	353.4	358.1	444.8	615.7	670.4	510.3	543.0	**6 199.5**
Other Areas	369.6	392.2	635.6	449.9	415.0	459.3	435.9	470.0	393.3	380.6	310.9	688.6	**5 400.9**
Conf. Wells	--	--	24.6	21.2	15.8	5.9	--	--	--	--	--	--	**67.5**
Total	**65 903.0**	**61 727.3**	**67 276.7**	**64 092.6**	**64 695.3**	**62 577.8**	**65 095.4**	**64 232.7**	**62 425.8**	**65 000.6**	**61 806.2**	**63 729.7**	**768 563.1**

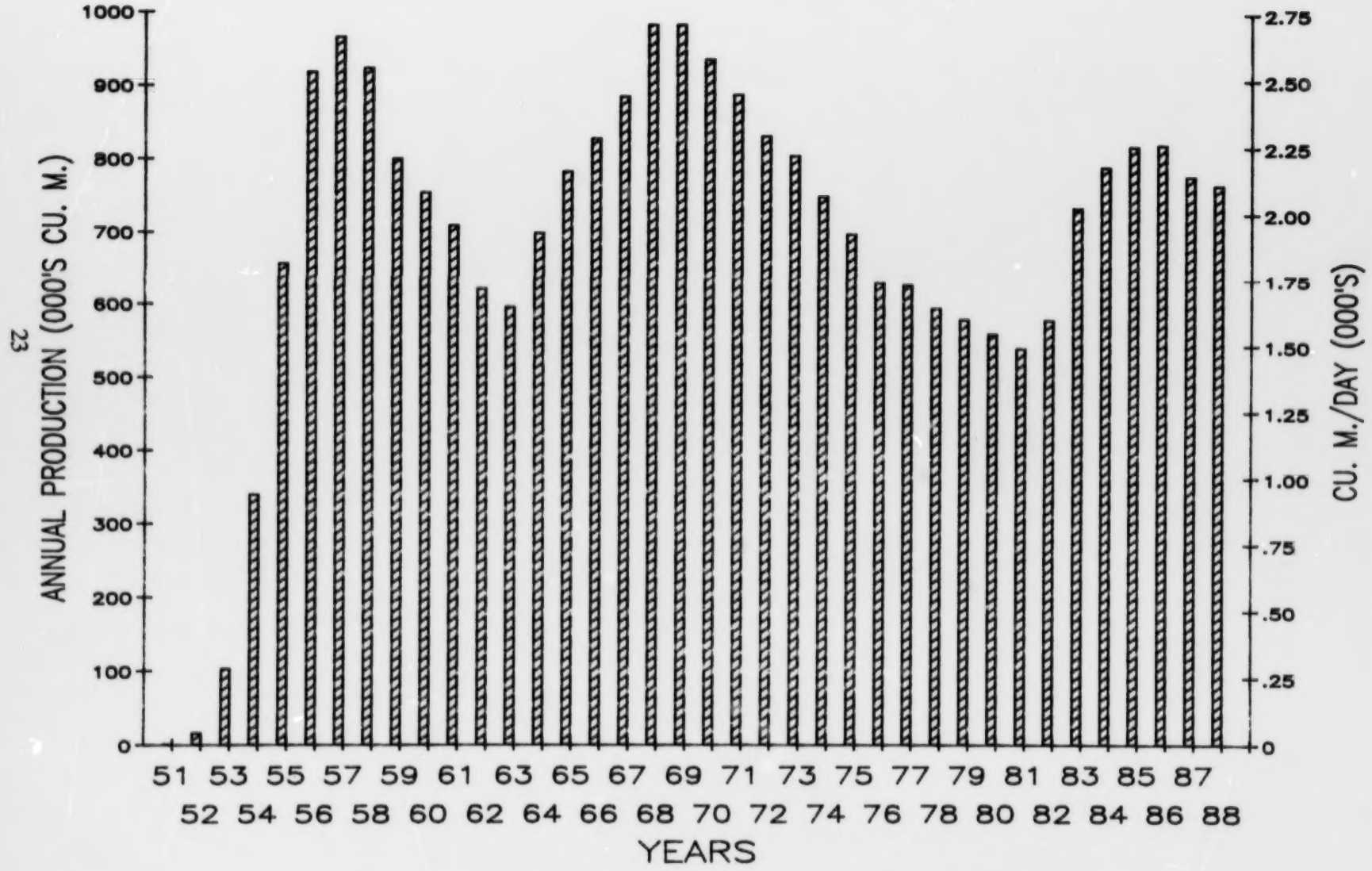
MANITOBA OIL AND WATER PRODUCTION
1951-1988

YEAR	WELLS CAPABLE OF PRODUCING (DECEMBER)	WELLS PRODUCING (DECEMBER)	OIL PRODUCTION (m^3)	WATER PRODUCTION (m^3)	TOTAL FLUID PRODUCTION (m^3)	AVG. WATER CUT (%)	AVG. OIL PRODUCTION (m^3/day)
1951	5	5	1 854	152	2 006	7.6	5.08
1952	39	32	17 022	4 068	23 096	17.6	46.64
1953	105	93	104 1953	50 614	154 807	32.7	285.46
1954	284	269	341 410	112 226	453 636	24.7	935.37
1955	554	486	658 802	160 092	818 894	19.5	1 804.94
1956	736	647	919 539	754 908	1 674 447	45.1	2 519.28
1957	846	739	967 721	1 709 792	2 677 513	63.9	2 651.29
1958	877	736	926 322	1 183 122	2 109 444	56.1	2 537.87
1959	875	730	803 461	1 273 632	2 077 093	61.3	2 201.26
1960	893	755	757 054	1 400 880	2 157 934	64.9	2 074.12
1961	874	729	711 969	1 510 627	2 222 596	68.0	1 950.60
1962	852	730	623 989	1 549 430	2 173 419	71.3	1 709.56
1963	839	683	599 212	1 550 287	2 149 499	72.1	1 641.68
1964	892	745	701 920	1 752 708	2 454 628	71.4	1 923.07
1965	889	748	786 050	2 004 068	2 790 118	71.8	2 153.56
1966	905	737	831 248	2 162 719	2 993 967	72.2	2 277.39
1967	911	752	887 572	2 288 271	3 175 843	72.1	2 431.70
1968	926	774	986 024	2 839 697	3 825 721	74.2	2 701.44
1969	923	754	985 981	3 091 398	4 077 379	75.8	2 701.32
1970	904	730	939 175	3 105 414	4 044 589	76.8	2 573.08
1971	900	695	890 622	3 463 885	4 354 507	79.5	2 440.06
1972	891	745	835 380	3 744 738	4 580 118	81.8	2 288.71
1973	882	687	807 882	3 983 740	4 791 622	83.1	2 213.38
1974	871	714	754 667	3 992 698	4 747 365	84.1	2 067.58
1975	831	686	701 459	3 975 389	4 676 848	85.0	1 921.81
1976	821	688	633 322	4 020 078	4 653 400	86.4	1 735.13
1977	804	701	630 466	4 226 135	4 856 601	87.0	1 727.30
1978	808	703	598 354	4 073 299	4 671 653	87.2	1 639.33
1979	811	706	583 377	3 946 337	4 529 714	87.1	1 598.29
1980	823	720	563 482	4 171 099	4 734 581	88.1	1 543.79
1981	853	748	542 695	4 565 210	5 107 905	89.4	1 486.84
1982	1 002	896	582 283	4 582 081	5 164 364	88.7	1 595.13
1983	1 160	1 041	736 934	5 079 646	5 816 580	87.3	2 022.74
1984	1 350	1 209	793 286	5 575 632	6 368 918	87.5	2 173.39
1985	1 505	1 366	820 729	5 685 409	6 686 138	87.7	2 248.57
1986	1 592	1 367	823 322	6 215 248	7 038 570	88.3	2 255.68
1987	1 624	1 434	781 806	6 317 251	7 099 057	89.0	2 141.93
1988	1 627	1 370	768 563	6 424 979	7 193 542	89.3	2 105.65
TOTAL	--	--	26 399 147	112 726 959	139 126 106	--	--

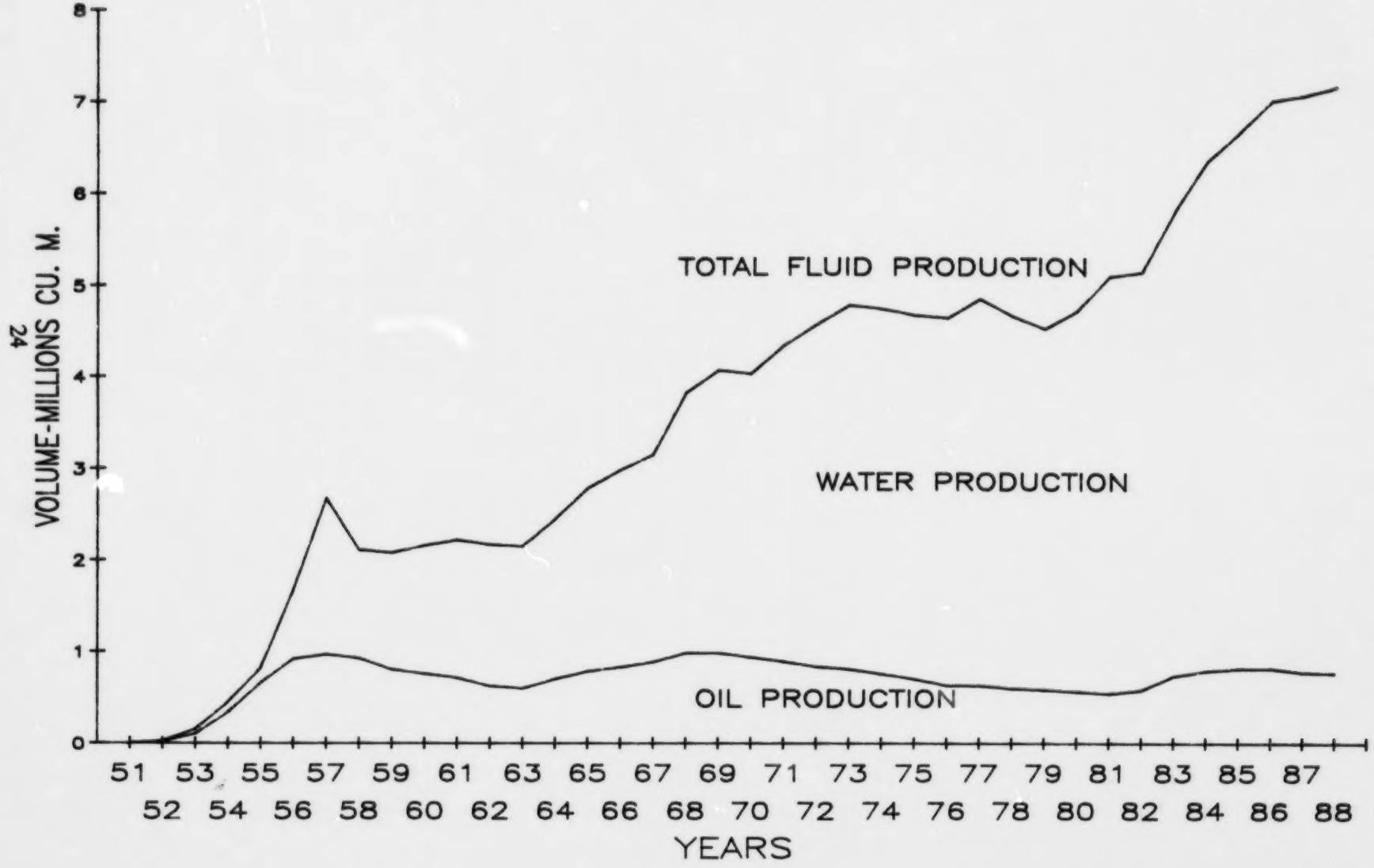
OIL PRODUCING WELLS IN MANITOBA
1951 - 1988



MANITOBA CRUDE OIL PRODUCTION
1951-1988



MANITOBA OIL AND WATER PRODUCTION
1951-1988



COMPARISON OF 1988 vs 1987 OIL PRODUCTION BY FIELD

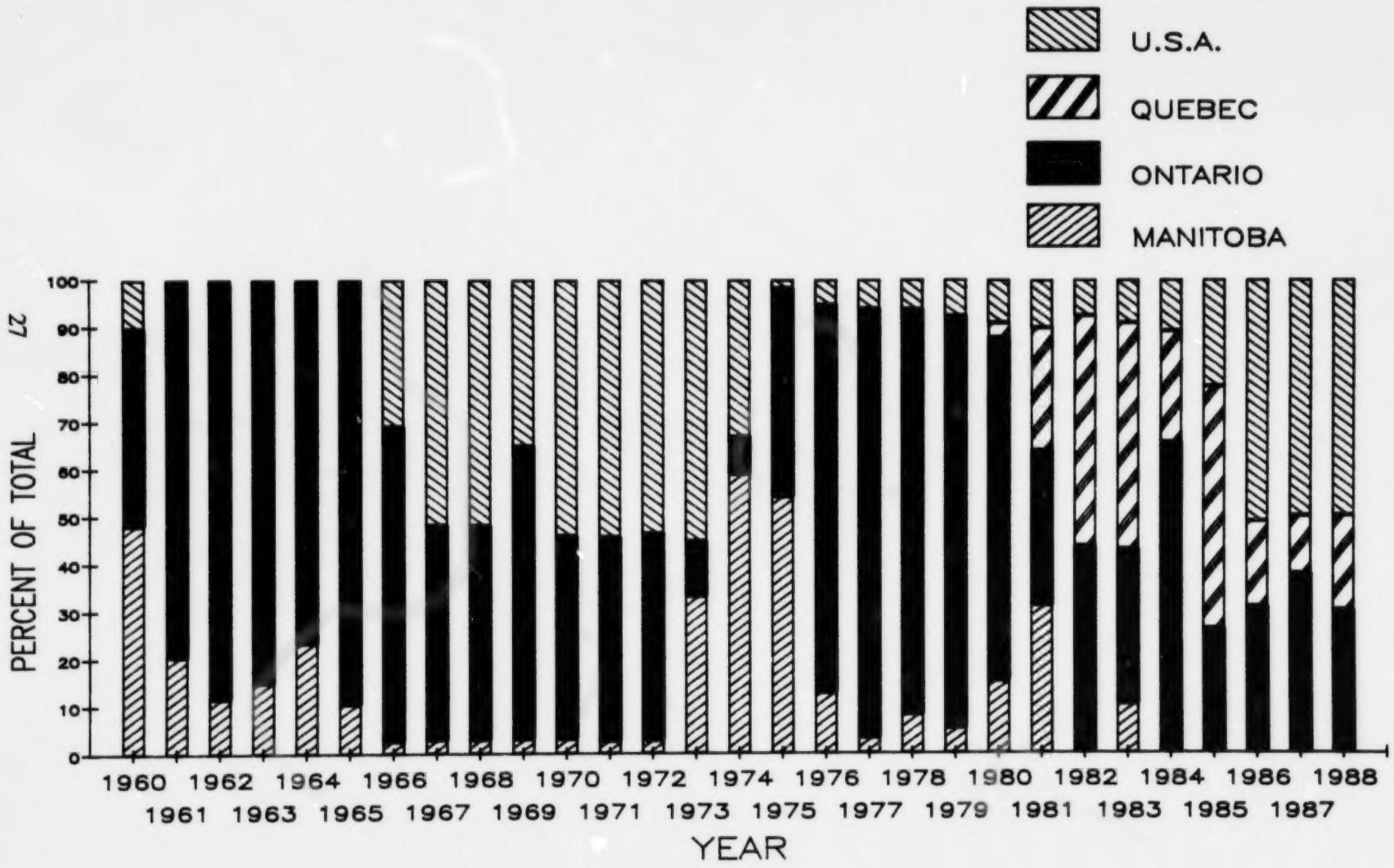
Field	1988 m^3	1988 % of Total	1987 m^3*	1987 % of Total	Change 1988/1987 increase/(decrease) m^3	Change 1988/1987 increase/(decrease) % Change
Daly	156 794.8	20.4	160 063.8	20.5	(3 269.0)	(2.0)
Tilston	5 634.5	0.7	6 897.7	0.9	(1 263.2)	(18.3)
Waskada	203 394.5	26.5	219 106.5	28.0	(15 712.0)	(7.2)
Lulu Lake	3 417.3	0.4	3 902.2	0.5	(484.9)	(12.4)
Virden	309 082.2	40.2	318 193.7	40.6	(9 111.5)	(2.9)
Whitewater	16 852.2	2.2	19 266.7	2.5	(2 414.5)	(12.5)
Pierson	23 244.7	3.0	21 646.3	2.8	1 598.5	7.4
Kirkella	9 424.6	1.2	8 573.8	1.1	850.8	9.9
Souris Hartney	2 270.6	0.3	2 479.6	0.3	(209.0)	(8.4)
Coulter	737.9	0.1	1 007.2	0.1	(269.3)	(26.7)
South Pierson	26 041.9	3.4	12 246.6	1.6	13 795.3	113.0
Regent	6 199.5	0.8	--	--	--	--
Other Areas	5 400.9	0.7	6 843.4	0.9	(1 442.5)	(21.0)
Confidential Wells	67.5	0.0	1 578.5	0.2	(1 511.0)	(96.0)
Total	**768 563.1**	**100.0**	**781 806.0**	**100.0**	**(13 242.9)**	**(1.7)**

DISPOSITION OF MANITOBA PRODUCED CRUDE OIL 1951-1988 (m^3)*

YEAR	MANITOBA**	ONTARIO	QUEBEC	USA	TOTAL
1951-1959		DATA NOT AVAILABLE			
1960	371 732	321 440	-	79 611	772 783
1961	148 029	573 637	-	-	721 666
1962	74 471	558 567	-	6 420	639 458
1963	94 452	533 598	-	-	628 050
1964	164 326	539 152	-	-	703 478
1965	82 651	701 955	-	-	784 606
1966	22 572	564 797	-	263 011	850 380
1967	27 417	416 097	-	476 577	920 091
1968	30 180	455 207	-	524 570	1 009 957
1969	31 323	620 216	-	351 918	1 003 457
1970	30 011	408 452	-	515 769	954 232
1971	24 539	388 389	-	490 412	903 340
1972	24 270	378 571	-	465 552	868 393
1973	273 687	95 745	-	455 093	824 525
1974	449 887	60 934	-	252 605	763 426
1975	383 383	312 397	-	12 596	708 376
1976	82 747	535 162	-	34 356	652 265
1977	21 877	609 298	-	41 309	672 484
1978	53 162	552 889	-	40 450	646 501
1979	33 258	549 524	-	48 261	631 043
1980	92 921	444 319	19 026	55 378	611 644
1981	180 402	189 659	150 177	57 702	577 940
1982	-	331 564	371 331	57 465	760 360
1983	81 887	258 611	380 911	71 544	792 953
1984	-	550 489	198 168	90 874	839 531
1985	-	245 364	483 508	211 331	940 203
1986	-	300 446	175 962	499 997	976 405
1987	-	349 807	113 418	464 806	928 031
1988	-	276 170	187 639	470 401	934 210
Total	**2 779 184**	**12 122 456**	**2 080 140**	**6 038 008**	**23 019 788**

* Includes some oil produced in Saskatchewan and transported into Manitoba.
** Manitoba's last refinery (Shell St. Boniface) closed in 1983.

DISPOSITION OF MANITOBA PRODUCED CRUDE OIL 1960-1988



Oil Prices

Continued excess production by the OPEC cartel caused world oil prces to progressively decline in the first half of 1988. The anouncement of an end to the Persian Gulf war in July temporarily stabilized prices and they began to rise by the end of the year, following OPEC's successful November meeting.

In January 1988, the average price of crude oil produced in Manitoba was $121.00 m^3 ($19.25 Cdn. per barrel). Prices decreased to a low of $92.00 m^3 ($14.60 Cdn. per barrel) in October and November and then rose, closing out the year at an average price of 100.00 m^3 in December ($15.90 Cdn. per barrel).

In 1988, Manitoba's overall average crude oil price decreased 27% to $102.26 m^3 ($16.25 Cdn. per barrel) compared with 1987's average of $139.76 m^3 ($22.20 Cdn. per barrel).

Value of Production

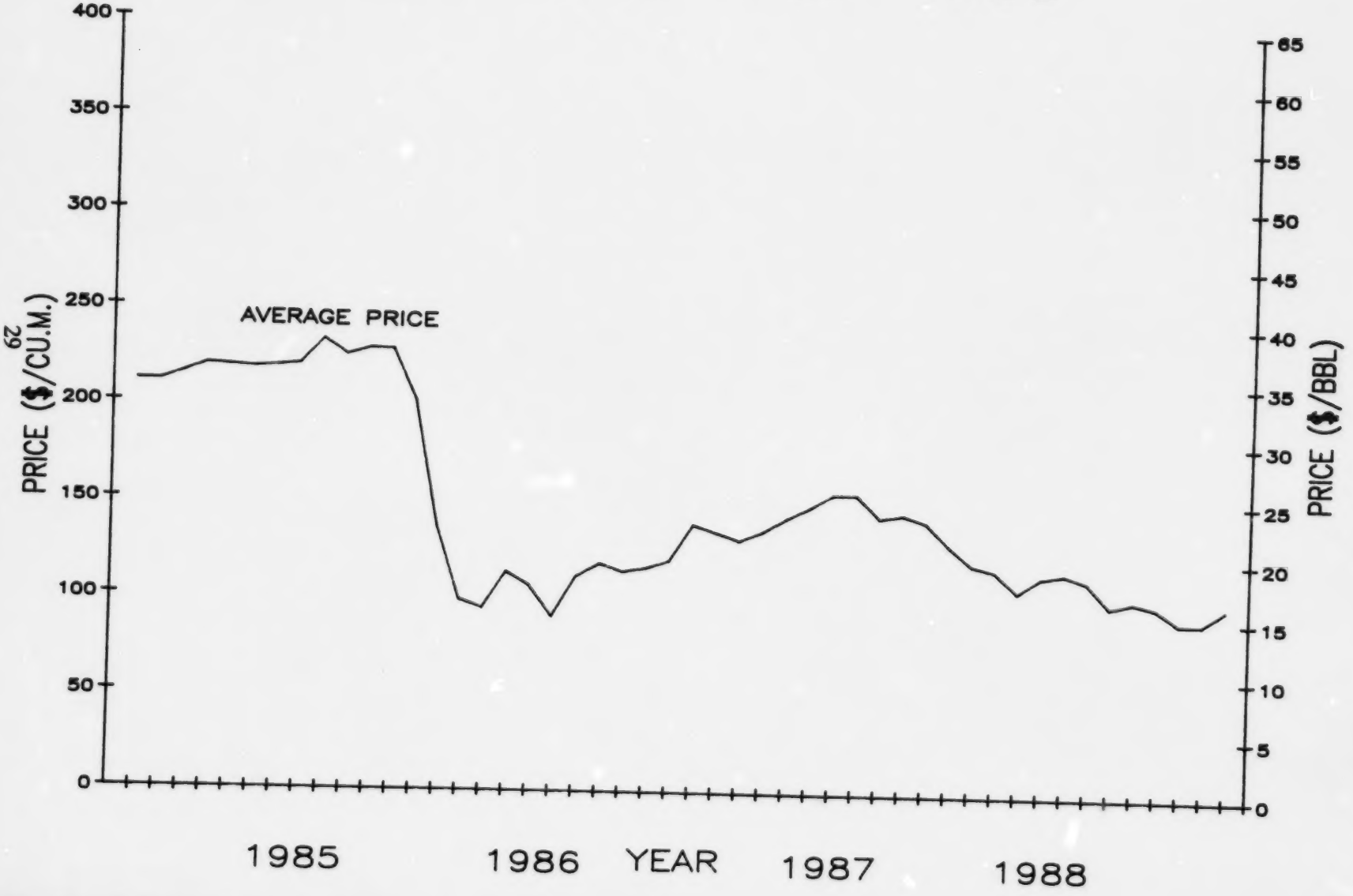
The total value of oil production during 1988 was $78.6 million, down 28% from 1987. Declining production and lower crude oil prices in 1988 contributed to the decrease in the value of production compared to 1987

.

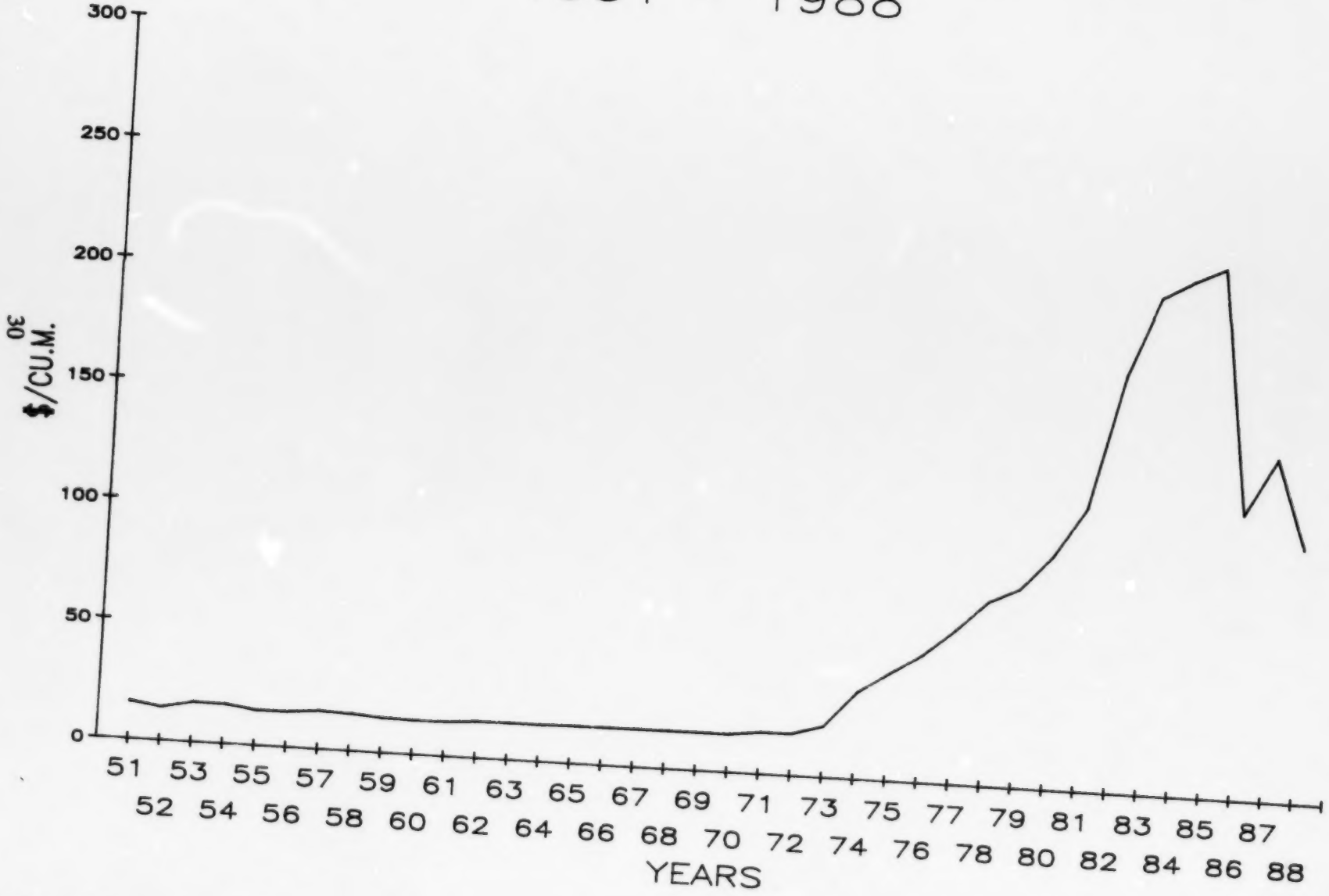
Provincial Revenue from Oil Production

Lower crude oil prices and declining production resulted in a decrease in direct government revenues in 1988. During 1988, the Manitoba government collected approximately $8.5 million in revenues ($2.0 million in Crown oil royalties, $5.9 million in freehold oil taxes, and $0.6 million in Crown lease sale bonuses, rentals and fees), resulting in a 28% decrease from 1987. These figures do not include provincial revenues in the form of corporate capital tax, sales tax, municipal tax and corporate and individual income tax.

MANITOBA MONTHLY CRUDE OIL PRICES 1985 -1988



MANITOBA AVERAGE CRUDE OIL PRICE
1951 - 1988



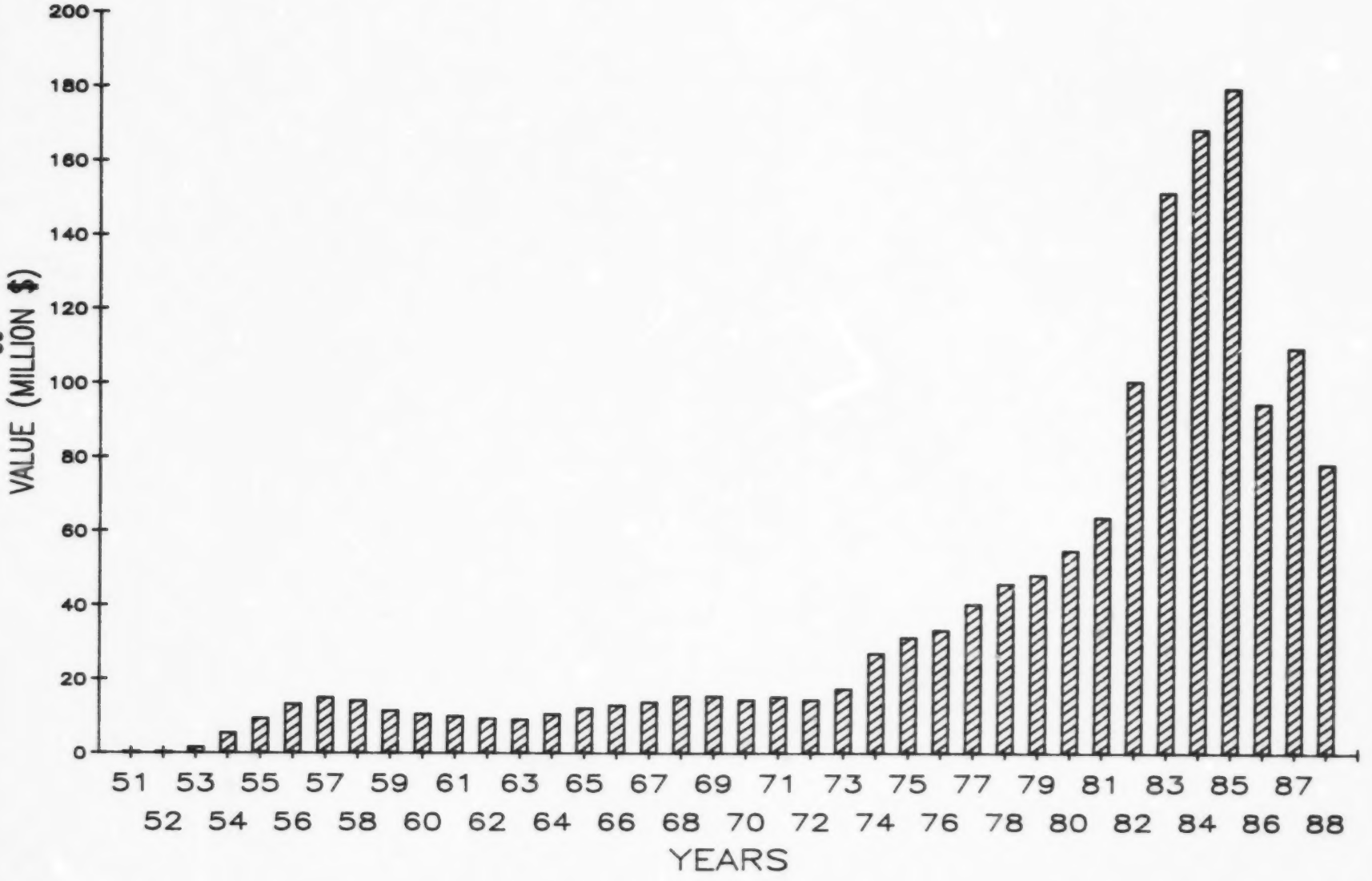
MANITOBA CRUDE OIL PRODUCTION AND SALES VALUE

1951-88

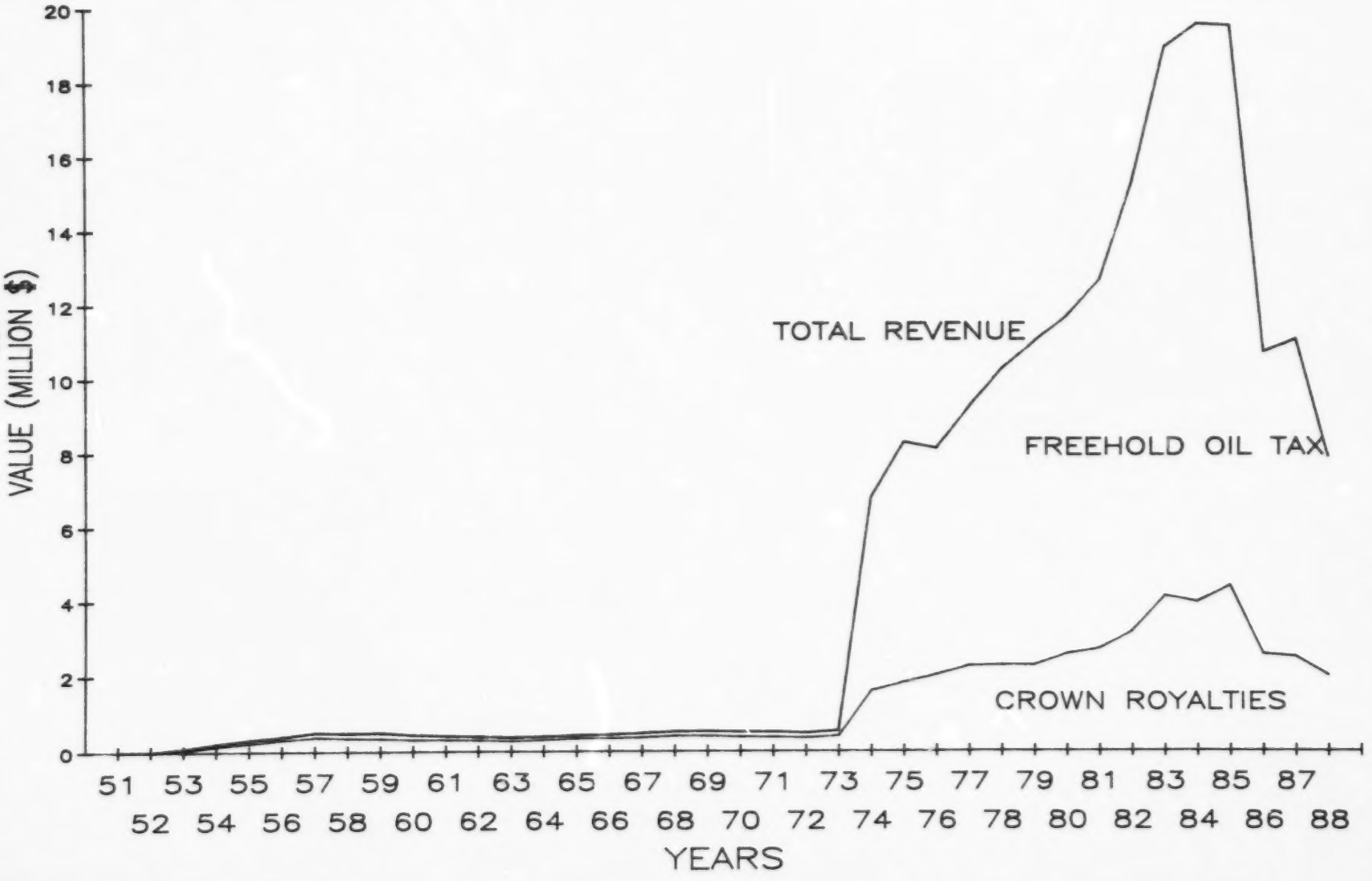
YEAR	ANNUAL PRODUCTION (m^3)	CUMULATIVE PRODUCTION (m^3)	VALUE OF SALES (000's $)	CUMULATIVE VALUE OF SALES (DEC. 31) (000's $)	AVERAGE * WELLHEAD PRICE $/$m^3$	$/bbl
1951	1 854	1 854	26	26	15.58	2.48
1952	17 022	18 876	229	255	13.77	2.24
1953	104 193	123 069	1 715	1 970	16.51	2.62
1954	341 410	464 479	5 620	7 590	16.46	2.62
1955	658 802	1 123 281	9 517	17 107	14.56	2.31
1956	919 539	2 042 820	13 417	30 524	14.61	2.32
1957	967 721	3 010 541	15 231	45 755	15.81	2.51
1958	926 322	3 936 863	14 265	60 020	15.40	2.45
1959	803 461	4 740 324	11 615	71 635	14.46	2.30
1960	757 054	5 497 378	10 690	82 325	14.16	2.25
1961	711 969	6 209 347	10 133	92 458	14.27	2.27
1962	623 989	6 833 336	9 500	101 958	15.12	2.49
1963	599 212	7 432 548	9 183	111 141	15.33	2.44
1964	701 920	8 134 468	10 694	121 835	15.31	2.43
1965	786 050	8 920 518	12 270	134 105	15.59	2.48
1966	831 248	9 751 766	13 087	147 192	15.73	2.50
1967	887 572	10 639 338	13 974	161 166	15.77	2.51
1968	986 024	11 625 362	15 561	176 727	15.79	2.51
1969	985 981	12 611 343	15 615	192 342	15.82	2.51
1970	939 175	13 550 518	14 858	207 200	15.80	2.51
1971	890 622	14 441 140	15 445	222 645	17.31	2.75
1972	835 380	15 276 520	14 586	237 231	17.46	2.77
1973	807 882	16 084 402	17 155	254 386	21.23	3.37
1974	754 667	16 839 069	27 182	281 568	36.00	5.72
1975	701 459	17 540 528	31 453	313 021	44.81	7.12
1976	633 322	18 173 850	33 533	346 554	52.99	8.42
1977	630 466	18 804 316	40 457	387 011	64.12	10.19
1978	598 354	19 402 670	45 953	432 964	76.77	12.20
1979	583 377	19 986 047	48 403	481 367	82.97	13.19
1980	563 482	20 549 529	54 958	536 325	97.57	15.51
1981	542 695	21 092 224	64 055	600 380	118.03	18.82
1982	582 283	21 674 507	100 537	700 917	173.57	27.58
1983	736 934	22 411 441	152 350	853 267	206.64	32.84
1984	793 286	23 204 727	169 296	1 022,563	214.04	34.02
1985	820 729	24 025 456	180 049	1 202,612	220.21	35.00
1986	823 322	24 848 778	95 337	1 297,949	114.66	18.23
1987	781 795	25 630 573	109 250	1 407,199	139.74	22.21
1988	768 563	26 399 136	78 600	1 485,799	102.27	16.25

* Average Wellhead Price = Value of Sales / Volume Sold

VALUE OF OIL PRODUCTION IN MANITOBA
1951 - 1988

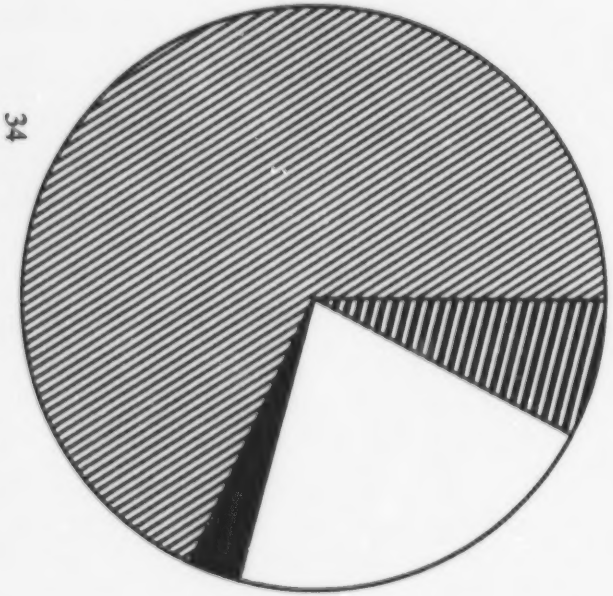


CROWN ROYALTIES AND TAXES FROM OIL PRODUCTION 1951 - 1988



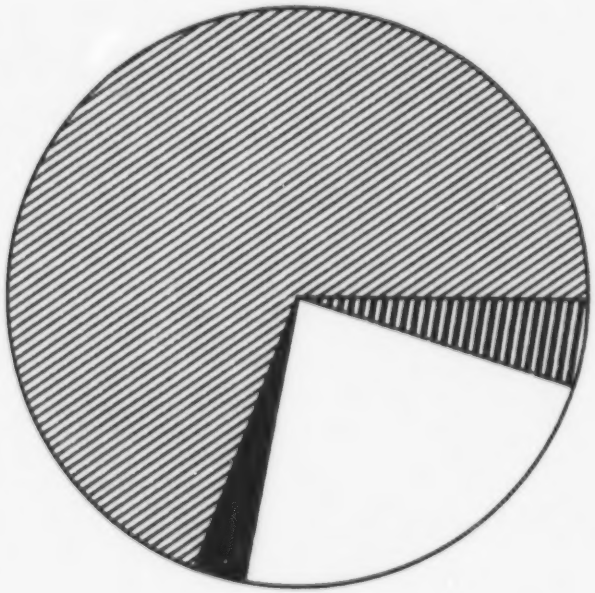
DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA

LEGEND
- FREEHOLD OIL TAX 68.2%
- FEES & RENTALS 2.8%
- CROWN ROYALTIES 21.4%
- LEASE BONUSES 7.6%



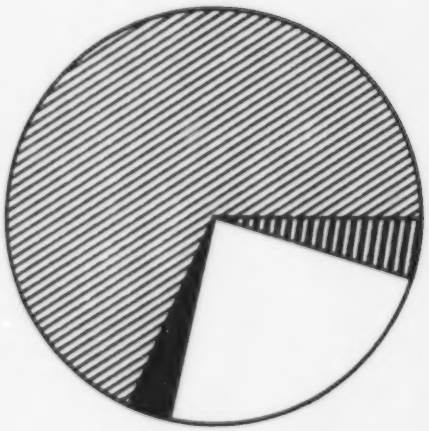
1986
TOTAL REVENUES
$11.99 MILLION

LEGEND
- FREEHOLD OIL TAX 69.4%
- FEES & RENTALS 2.7%
- CROWN ROYALTIES 23%
- LEASE BONUSES 4.9%



1987
TOTAL REVENUES
$11.93 MILLION

LEGEND
- FREEHOLD OIL TAX 68.4%
- FEES & RENTALS 3.3%
- CROWN ROYALTIES 23.7%
- LEASE BONUSES 4.7%



1988
TOTAL REVENUES
$8.57 MILLION

DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA*
1951-1988

YEAR	CROWN ROYALTIES	FREEHOLD OIL TAX ($)**	CROWN LEASE*** RENTAL ($)	CROWN LAND**** SALES ($)	MISCELLANEOUS FEES ($)	TOTAL DIRECT* REVENUES ($)
1951	2 000	--	4 000	--	5 000	11 000
1952	7 000	--	7 000	--	9 000	23 000
1953	50 000	46 000	6 000	--	8 000	110 000
1954	156 000	64 000	18 000	88 000	24 000	350 000
1955	230 000	92 000	69 000	627 000	10 000	1 028 000
1956	318 000	83 000	512 000	156 000	18 000	1 087 000
1957	382 000	126 000	421 000	110 000	--	1 039 000
1958	356 000	137 000	293 000	--	31 000	817 000
1959	344 000	165 000	201 000	14 000	2 000	726 000
1960	313 000	130 000	98 000	4 000	2 000	547 000
1961	306 000	105 000	93 000	135 000	5 000	644 000
1962	298 000	96 000	90 000	26 000	10 000	520 000
1963	276 000	91 000	47 000	40 000	3 000	457 000
1964	307 000	86 000	35 000	122 000	23 000	573 000
1965	344 000	84 000	62 000	102 000	3 000	595 000
1966	353 000	96 000	60 000	94 000	3 000	606 000
1967	370 000	111 000	56 000	83 000	10 000	630 000
1968	411 000	116 000	39 000	60 000	14 000	640 000
1969	405 000	128 000	31 000	84 000	4 000	652 000
1970	377 000	143 000	28 000	15 000	1 000	564 000
1971	373 000	143 000	21 000	34 000	2 000	573 000
1972	348 000	138 000	16 000	--	1 000	503 000
1973	404 000	144 000	15 000	--	2 000	565 000
1974	1 599 000	5 216 000	15 000	--	4 000	6 834 000
1975	1 823 000	6 498 000	12 000	--	1 000	8 334 000
1976	2 024 000	6 128 000	11 000	--	11 000	8 174 000
1977	2 263 000	7 012 000	10 000	--	3 000	9 288 000
1978	2 281 000	8 018 000	10 000	--	6 000	10 315 000
1979	2 280 000	8 769 000	44 000	944 000	12 000	12 049 000
1980	2 575 000	9 159 000	128 000	1 884 000	11 000	13 757 000
1981	2 715 000	10 005 000	186 000	1 692 000	12 000	14 610 000
1982	3 176 000	12 194 000	231 000	1 058 000	28 000	16 687 000
1983	4 135 000	14 825 000	270 000	1 076 000	59 000	20 365 000
1984	3 972 000	15 622 000	275 000	2 187 000	68 000	22 124 000
1985	4 413 000	15 133 000	307 000	4 224 000	89 000	24 166 000
1986	2 570 000	8 179 000	277 000	917 000	53 000	11 996 000
1987	2 746 000	8 278 000	273 000	580 000	55 000	11 932 000
1988	2 034 000	5 861 000	237 000	400 000	42 000	8 573 000
Total	**47 336 000**	**143 221 000**	**4 509 000**	**16 756 000**	**644 000**	**212 464 000**

* Does not include corporate capital tax, sales tax, corporate and individual income tax or oil export tax.
** Now under the Oil and Gas Production Tax Act, Cap.037.
*** Includes only Rental Fees.
**** Includes Bonus and Application Fees.

Municipal Tax Assessments

Oil producers in Manitoba pay a municipal tax on production facilities, including: oil wells, batteries, salt water disposal wells, salt water disposal plants, water injection wells, suspended wells and pipelines.

The municipal tax assessment on these facilities for the calendar year 1988 was approximately $9.1 million dollars, an increase of 3% over the previous year.

Actual tax revenue from these assessments should amount to approximately $1.8 million for affected municipalities.

Surface Owners

Prior to drilling a well, an oil company is required to negotiate a surface lease, which provides right of entry, with the landowner. The normal surface lease includes a first-year bonus payment and a subsequent annual rental fee for the duration of the lease.

Where the landowner is renting his land to another party, the oil company seeking right-of-entry must obtain the consent of both the landowner and the occupant.

After a lease has been signed, the landowner and occupant then determine what each will receive as his share of the compensation paid by the oil company.

In 1988, an estimated $3.4 million was paid by oil companies to landowners in the form of first-year bonuses ($0.4 million) and annual rental fees ($3.0 million).

Following proclamation of The Surface Rights Act on August 9, 1984, disputes relating to right-of-entry or compensation are referred to the Surface Rights Board. The Board's principal function is to arbitrate disputes between the petroleum industry and landowners regarding use of land for exploration, development and related operations and to determine what compensation should be paid to the landowner.

The Minister of Municipal Affairs is responsible for the administration of The Surface Rights Act. The Board's office is located in Winnipeg.

Waskada Gas Plant

During 1988 the Waskada gas plant, now in its fifth year of production, operated at approximately 37% of capacity (capacity = 85 000 m^3/day) producing 5 060.1 m^3 of propane, butane and condensate, valued at $299,631. Compared with 1987, volumes in 1988 increased by 15%. Of the total 5 060.1 m^3 produced, propane accounted for 62%, butane 26% and condensate 12%.

Manitoba Drilling Incentive Program (1979 - 1986)

The original "Manitoba Drilling Incentive Program" provided for reduced Crown oil royalty and freehold oil tax rates on oil produced from new wells. Wells drilled between January 1, 1979 and January 1, 1987, and producing from Crown mineral rights qualified for a special reduced royalty incentive rate which was 35% of the corresponding base royalty rate charged on "old oil".

New wells producing from freehold mineral rights were eligible for a corresponding incentive freehold oil tax rate under The Oil and Gas Production Tax Act.

The reduced royalty and tax rates applied to production from a new oil well during its respective "incentive period".

The incentive period earned for wells producing from provincial Crown mineral rights was called a "royalty incentive period" (RIP) whereas wells producing from freehold mineral rights earned a "production incentive period" (PIP).

As of December 31, 1988, 70 of the 1 604 wells capable of producing oil in the Province were operating under an incentive period (20% under RIP and 80% under PIP).

It is estimated that since the program was implemented in 1979, the value of the incentive to industry has been in excess of $15.0 million.

The Drilling Incentive Program expired on December 31, 1986.

Manitoba Drilling Incentive Program (1987 - 1991)

The "new" Manitoba Drilling Incentive Program announced March 2, 1987 (effective January 1, 1987) replaces the previous program which expired on December 31, 1986. The new program provides greater incentives for drilling exploratory wells while also assisting development drilling.

With the new program, qualifying wells are provided with a royalty/tax free "holiday volume". The amount of "holiday volume" varies in response to oil prices and is dependent on the well's location, depth, producing formation and qualifying credits from previous dry holes. This represents a significant improvement over the previous program which provided operators with reduced royalty/tax rates for a period of time dependent only on well depth.

Each new oil well drilled in Manitoba after January 1, 1987, and prior to January 1, 1992, can earn a "holiday volume" of oil up to a maximum of 10 000 m^3 or 5 years of producion, whichever occurs first.

Under the program, 81 wells qualified to receive holiday oil volumes in 1987 with the average volume awarded per well being 1605.3 m^3

Of the total number of qualifying wells, 66 wells recorded production and the Crown royalty and oil tax savings to qualifying operators were $395,397. Of the total royalty and tax savings, $183,974 or 47% was attributed to Crown mineral rights while the remainding $211,423 or 53% was from freehold wells.

Enhanced Oil Recovery Incentive Program

An Enhanced Oil Recovery Incentive Program was established in 1987. The program works in the following manner: wells in new or enlarged enhanced oil recovery projects, approved after January 1, 1987, and fully implemented prior to January 1, 1992, are eligible for an incentive period of up to 60 months. During this time, operators benefit from reduced Crown royalty and tax rates on production from the projects.

During 1988, two waterflood projects were implemented, both of which qualified for EOR incentives under the program.

Oil Reserves

From 1973 to 1980, remaining established oil reserves in Manitoba declined at a rate of approximately 5% per year due to production and lack of new discoveries.

This trend began to reverse in 1980 as new discoveries were made in the Kirkella area. New discoveries in the Waskada area in 1981 further arrested the decline and as a result of additional development in the area in 1982 and 1983 reserves increased. This increase in the province's remaining established reserves followed more than 16 years of decline.

In 1986, remaining established oil reserves again began to decline. This declining trend has continued through 1988 and is a result of reduced drilling activity caused by low oil prices. During this period, additions to reserves have not kept pace with production.

As of December 31, 1988, the province's total remaining established oil reserves are estimated at 7.65 million cubic metres (48 million barrels) down 5% from 1987.

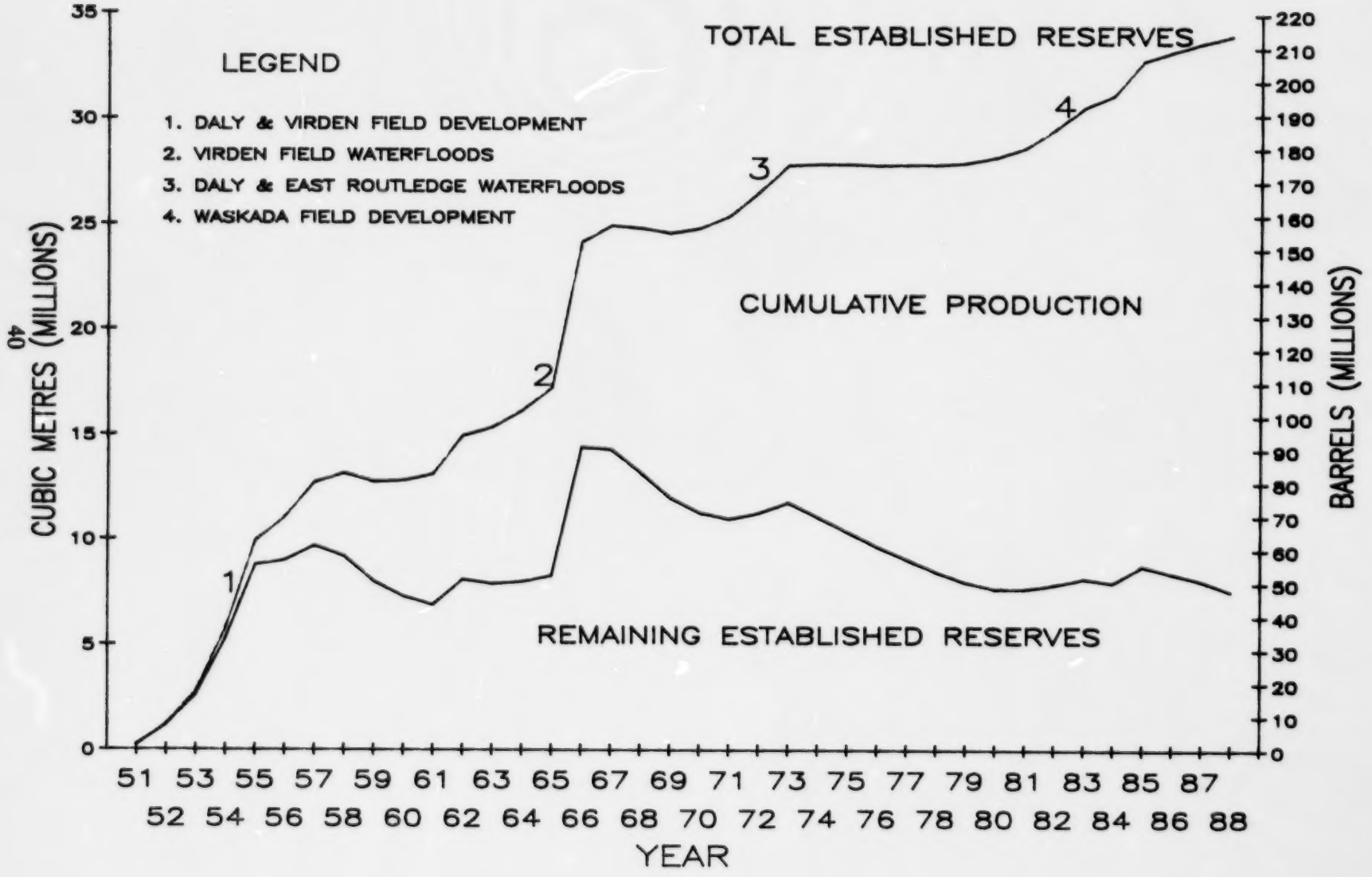
CRUDE OIL RESERVES IN MANITOBA

1973-1988

YEAR	PRODUCTION (m^3)	ESTABLISHED RESERVE ADDITIONS (m^3)	REMAINING ESTABLISHED RESERVES (m^3)	LIFE INDEX*
1973	807 882	Nil	11 798 000	14.60
1974	754 667	15 000	11 059 000	14.65
1975	701 459	4 000	10 362 000	14.77
1976	633 322	7 000	9 735 000	15.37
1977	630 466	15 000	9 120 000	14.46
1978	598 354	22 000	8 543 000	14.28
1979	583 377	24 000	7 984 000	13.64
1980	563 482	314 000	7 735 000	13.73
1981	542 695	544 000	7 736 000	14.25
1982	582 322	733 000	7 927 000	13.60
1983	736 934	954 000	8 154 000	11.06
1984	793 284	663 000	8 024 000	10.11
1985	820 729	1 628 000	8 831 000	10.76
1986	823 322	439 000	8 447 000	10.26
1987	781 806	401 000	8 066 000	10.32
1988	768 563	343 000	7 650 000	9.95

*Remaining Established Reserves divided by Annual Production

MANITOBA ESTABLISHED OIL RESERVES (HISTORY)


LEGEND
1. DALY & VIRDEN FIELD DEVELOPMENT
2. VIRDEN FIELD WATERFLOODS
3. DALY & EAST ROUTLEDGE WATERFLOODS
4. WASKADA FIELD DEVELOPMENT
TOTAL ESTABLISHED RESERVES
CUMULATIVE PRODUCTION
REMAINING ESTABLISHED RESERVES
1
2
3
4
CUBIC METRES (MILLIONS)
40
BARRELS (MILLIONS)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88
YEAR

Petroleum Industry Employment

The precipitous fall and slow recovery in crude oil prices not only affected activity levels and revenues but also employment levels in the industry.

In 1988 direct industry employment continued to decrease to approximately 225-250 person years, a 22% - 26% decrease from 1987 levels. Of this total, approximately 18% of the employment was attributed to new geophysical and drilling activity, with the remaining 82% of employment associated with ongoing operation and maintenance functions of existing petroleum related facilities.

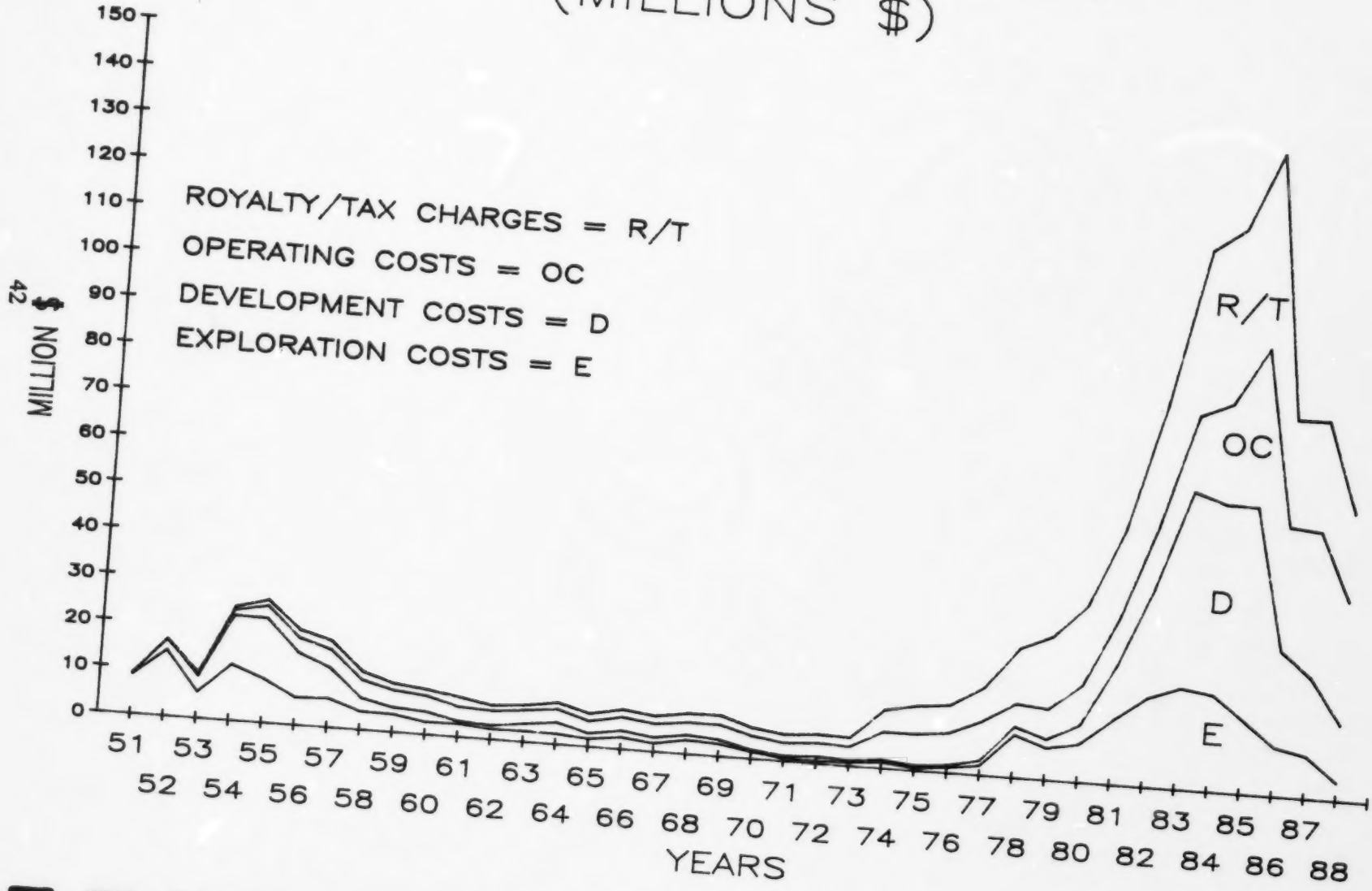
In addition to direct employment, there are indirect jobs created as a result of petroleum industry activity. For every 10 direct jobs created by the petroleum industry in 1988, there were between 10-15 indirect jobs created. This resulted in another 225-375 person years of indirect employment.

Industry Expenditures

As a result of reduced oil patch activity in Manitoba during 1988, it is estimated that industry spent $63 million in the province compared with $82 million in 1987. The total expenditures can be broken down into seven categories: exploration, development, land, producing facilities, producing costs, royalties and other.

- The exploration component which includes, exploratory drilling costs, geophysical and geological work amounted to approximately $5.0 million.
- Development costs include development drilling costs which accounted for approximately $9.0 million.
- Land costs were based on freehold and Crown mineral and surface rights acquisition costs, fees and rentals. The total estimated cost of this component amounted to $3.4 million.
- Producing facilities included mainly capital costs associated with field equipment and enhanced recovery schemes. Approximately $2.1 million were spent on this component.
- Production costs were valued at $24.6 million and include well operating, flow line and gas plant costs.
- Royalties included freehold production royalties, Crown production royalties and freehold oil taxes. It was estimated that this component was valued at $16.4 million for 1988.
- Other costs in total industry expenditure include municipal taxes, right-of-way acquisitions and miscellaneous expenditures totalling approximately $2.3 million.

PETROLEUM INDUSTRY EXPENDITURES IN MANITOBA 1951 - 1988 (MILLIONS $)



1989 FORECAST

Petroleum activity in Manitoba is not expected to exceed 1988 activity levels.

Crown land sales are expected to generate between $0.3 - 0.5 million compared with 1988's figure of $0.43 million.

The number of geophysical programs expected in 1989 should range between 5-10 programs.

In addition, promising exploration and development activity in eastern Saskatchewan could spill over into Manitoba (in the Pierson and Daly/Birdtail areas) if these plays turn out successful results. It is also possible some Winnipegosis Formation evaluation may occur depending on continued success in the neighboring Saskatchewan Tableland play.

Chevron Canada Resources has announced plans for a reduced spacing program in the Virden Field. The $3.6 million project involves drilling 9 new wells and converting 11 existing wells to water injection. The project has recently been approved by The Manitoba Oil and Natural Gas Conservation Board and is expected to be implemented this year.

Drilling performance so far in the first quarter of 1989 has been poor. It is forecast that 25 - 40 wells will be drilled in Manitoba in 1989 as drilling is expected to remain sluggish. Much of the drilling activity will likely continue to occur in the Daly, Virden and Waskada Fields.

With fewer wells being drilled in 1989 crude oil production is expected to continue to decline. It is expected that production in 1989 will decrease by five per cent to 730 000 m^3 compared with 768 563 m^3 in 1988.

Crude oil prices are expected to fluctuate in the range $115.00 - $145.00/$m^3$ but should average the year out at $130.00/$m^3$ (up significantly from 1988's average of $102.26/$m^3$).

The value of crude oil production is forecast to be approximately $95 million in 1989.

Associated with production value are direct revenues to the Crown in the form of Crown royalties and oil taxes. These are expected to be in the range of $2.0 - 2.5 million for Crown royalties and $6.0 - 7.0 million for freehold oil taxes.

MANITOBA OIL FIELDS - 1988

	DALY	TILSTON	WASKADA	LULU LAKE	VIRDEN	WHITE-WATER	PIERSON	KIRKELLA	SOURIS HARTNEY	COULTER	SOUTH PIERSON	REGENT	OTHER AREAS	CONF. WELLS	TOTAL
DISCOVERY YEAR	1951	1952	1952	1953	1953	1953	1954	1957	1962	1952	1961	1955	--	--	--
AVG. DEPTH TO PRODUCING FORMATION (m)	769	945	923	1 000	630	785	1 003	738	655	970	990	770	--	--	--
PRODUCING FORMATION	L/B	MC	MC/LAm	L	L	LAm/L	MC/LAm	L	L	MC/LAm	MC/LAm	L	LAm MC/L	--	--
WELL SPACING (ha)	16	16	16	16	16	16	16	16	32	16	16	16	16	--	--
WELLS CAPABLE OF OIL PROD. (DEC. 1988)	418	20	417	7	574	27	55	35	8	9	30	11	14	2	**1 627**
OIL WELLS PROD. (DEC. 1988)	346	14	318	7	536	24	47	24	6	4	26	9	9	--	**1 370**
1988 OIL PROD. (m^3)	156 795	5 634	203 394	3 417	309 082	16 852	23 245	9 425	2 271	738	26 042	6 200	5 401	67	**768 563**
CUM. OIL PROD. (DEC. 31/88) (m^3)	4 315 679	116 674	1 674 955	57 222	19 182 443	164 894	372 568	242 989	137 540	10 980	71 450	19 641	31 426	67	**26 398 528**
REMAINING ESTABLISHED RESERVES(m^3) (DEC. 31, 1988) (000's m^3)	1281.6	31.3	1812.8	24.8	3 997.9	59.2	207.9	39.5	28.7	.5	138.4	8.4	22.3	0	**7654**

L = Lodgepole
LAm = Lower Amaranth
MC = Mission Canyon
B = Bakken

GEOLOGICAL FORMATIONS IN MANITOBA

AGE Millions of years before present	ERA	PERIOD	EPOCH	FORMATION	MEMBER	MAX. THICK (m)	BASIC LITHOLOGY
	CENOZOIC	QUATERNARY	RECENT				TOP SOIL, DUNE SANDS
			PLEISTOCENE	GLACIAL DRIFT		140	CLAY, SAND, GRAVEL, BOULDERS, PEAT
		TERTIARY	PLIOCENE				
			MIOCENE				
50			OLIGOCENE				
			EOCENE				
65			PALEOCENE	TURTLE MTN.	PEACE GARDEN	120	SHALE, CLAY AND SAND, LIGNITE BEDS LOCATED ONLY IN TURTLE MOUNTAIN
					GOODLANDS		
	MESOZOIC	CRETACEOUS	UPPER CRETACEOUS	BOISSEVAIN		30	SAND AND SANDSTONE, GREENISH GREY, LOCATED ONLY IN TURTLE MOUNTAIN
				RIDING MTN.	[illegible]	310	GREYSHALES—NON-CALC, LOCAL IRONSTONE BENTONITE NEAR BASE, GAS FOUND
				VERMILION RIVER	PEMBINA	155	SHALE DARK GREY CARBONACEOUS NON-CAL, BENTONITE BANDS
					BOYNE		SHALE GREY SPECKLED CALC, BENTONITIC SLIGHTLY PETROLIFEROUS
					MORDEN		SHALE DARK GREY NON-CALC, CONCRETIONS, LOCAL AND SILT
				FAVEL		40	GREY SHALE WITH HEAVY CALCAREOUS SPECKS BANDS LIMESTONE AND BENTONITE
100				ASHVILLE		115	SHALE, DARK GREY, NON-CALC, SILTY
			LOWER CRETACEOUS	ASHVILLE SAND			SAND ZONE 27m F.G. QTZ S. OR SS
				SWAN RIVER		75	SANDSTONE AND SAND, QTZ, PYRITIC SHALE—GREY, NON-CALC
150		JURASSIC	UPPER JURASSIC	WASKADA		200	BANDED GREEN SHALE AND CALC. SANDSTONE
				MELITA			BANDS OF LIMESTONE, VARI-COLORED SHALE
			MIDDLE JURASSIC	RESTON		45	LIMESTONE, BUFF, AND SHALES, GREY
				AMARANTH	UPPER EVAPORITE	45	WHITE ANHYDRITE AND/OR GYPSUM AND BANDED DOLOMITE AND SHALE
200					LOWER RED BEDS	40	RED SHALE TO SILTSTONE, DOLOMITIC **OIL PRODUCING**
		TRIASSIC					
	PALEOZOIC	PERMIAM	(?)	ST. MARTIN COMPLEX		300	CARBONATE BRECCIA, TRACHYANDESITE (CRYPTO-EXPLOSION STRUCTURE)
250		PENNSYLVANIAN					
300		MISSISSIPPIAN		MADISON GROUP: CHARLES		20	MASSIVE ANHYDRITE AND DOLOMITE
				MISSION CANYON	MC-3	120	LIMESTONE—LIGHT BUFF, OOLITIC, FOSS, FRAG, CHERTY, BANDS SHALE AND ANHYDRITE **OIL PRODUCING**
					MC-2		
					MC-1		
				LODGEPOLE	FLOSSIE LAKE	185	LIMESTONE & ARG. LIMESTONE, LIGHT BROWN AND REDDISH MOTTLED ZONES OF SHALEY, OOLITIC, CRINOIDAL & CHERTY **OIL PRODUCING**
					WHITEWATER LAKE		
					VIRDEN		
					[illegible]		
				BAKKEN	UPPER	20	2 BLACK SHALE ZONES SEPARATED BY SILTSTONE **OIL PRODUCING**
					MIDDLE		
350					LOWER		
		DEVONIAN		LYLETON (WINNIPEG GP.)		35	RED SILTSTONE AND SHALE, DOLOMITIC
				SASK. GROUP: NISKU		40	LIMESTONE & DOLOMITE, YELLOW-GREY, FOSS, POROUS, SOME ANHYD
				DUPEROW		170	LIMESTONE & DOLOMITE, ARG. & ANHYDRITIC IN PLACES
				MAN GROUP: SOURIS RIVER 1 ST RED		120	CYCLICAL SHALE, LIMESTONE & DOLOMITE, ANHYDRITE
				DAWSON BAY 2 ND RED		85	LIMESTONE & DOLOMITE, POROUS, ANHYDRITE—LOCAL SHALE RED & GREEN
				ELK POINT G.: PRAIRIE EVAP		120	SALT, POTASH & ANHYDRITE, DOLOMITE INTER—BEDDED
				WINNIPEGOSIS		75	DOLOMITE, LIGHT YELLOWISH BROWN, REEFY
				ELM POINT			LIMESTONE—FOSS, HIGH CALCIUM
400				ASHERN		12	DOLOMITE AND SHALE—BRICK RED
		SILURIAN		INTERLAKE GROUP		135	DOLOMITE, YELLOWISH—ORANGE TO GREYISH—YELLOW, FOSS, SILTY ZONES
		ORDOVICIAN		STONEWALL		15	DOLOSTONE, GREYISH YELLOW, BEDDED
				STONY MOUNTAIN	WILLIAMS	30	DOLOMITE—YELLOWISH—GREY SHALEY
					GUNTON		
					PENITENTIARY		DOLOMITE—DUSKY—YELLOW FOSS
					GUNN	20	SHALE RED—GREEN FOSS, LIMESTONE BANDS
450				RED RIVER	FORT GARRY	170	DOLOMITIC LIMESTONE, MOTTLED AND DOLOMITE
					SELKIRK		
					CATHEAD		
					DOG HEAD		
				WINNIPEG	UPPER UNIT	60	SHALE, GREEN, WAXY, SANDSTONE INTERBEDDED
500					SANDSTONE		SAND, SANDSTONE, QUARTZOSE
550		CAMBRIAN		DEADWOOD		60	SAND, BLACK TO GREEN—GREY WAXY, GLAUCONITIC SILTSTONE & SHALE, GREEN—GREY TO BLACK, VERY EDGE OF S.W. MANITOBA ONLY
	PRECAMBRIAN						ACID & BASIC CRYSTALLINES & METAMORPHICS